Can different applications of solution focused cognitive behavioural coaching enhance well-being?

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Abstract

Background: a series of studies evaluating different applications of solution focused cognitive behavioural coaching (SFCBC) were performed to explore the feasibility of methods, designs and the randomised research process. The aim of the main and last study was to explore if different applications SFCBC could increase psychological and subjective well-being in a work environment setting. Method: The SFCBC was delivered face to face, virtually by Skype and in the form of a computerised self-coaching program, all applications were based on the PRACTICE framework (Palmer, 2011). Virtual coaching solutions could provide cost-effective ways to reach larger work populations and potentially lower the threshold for seeking further assistance with issues at work, issues that if not detected and handled, could lead to decreased well-being. Research regarding coaching has taken place primarily face to face, and there is a lack of studies on the effects of assisted and non-assisted, cognitive behavioural virtual coaching programs in the workplace.

Design/procedure: A randomised controlled trial design was used, consisting of 86 working adults that were randomly allocated to either one of the three intervention groups or a waiting list control group. Comparisons were performed between intervention groups and the control group. The coaching program was used for 8-12 weeks, and online surveys were conducted at three time points, pre-coaching, at the end of the programme and three months after completion. Primary outcome measures were: psychological and subjective well-being and secondary outcomes investigated the coaching applications effects on goal attainment and perceived psychosocial risk/health factors. The results showed that the PRACTICE framework had a direct effect on subjective well-being (SWB) through the Skype application. Furthermore, that SFCBC had mediating effects on the participant's perceptions of demands (Skype) at work. The study also gave information about which goals participants chose to work with (like role ambiguity) to increase their SWB at work, and solutions chosen, to increase, for example, job clarity through support seeking behaviour and development of cognitive-behavioural aspects.

Chapter 1: Introduction

This thesis and its content reflect an eight-year part-time PhD journey which started in 2008 at a café outside London, when I met Professor Stephen Palmer for the first time after sending a proposal for a research study to the Coaching Psychology Unit at City University (now City, University of London). It was an important moment in my life. As a licensed psychologist based in a company healthcare organisation, I was using a more preventative approach and often found myself wondering what I was doing working more with coaching methods than with CBT as a psychotherapist. There had been nothing mentioned about this approach in my psychology education; and in Sweden at that time, information was scarce on coaching psychology as a subject. I remember walking out of that café with a 'Eureka' feeling: happy, inspired, filled with new ideas, and excited to begin my exploration of the coaching psychology field. Since then, whenever I have been confronted with the real world and the endeavours of researching a relatively new method in an organisational context, that moment has helped me to remember why I started this journey.

The research question formulated at the start of this process was to explore the usefulness of a face-to-face coaching method and whether solution-focused cognitive behavioural coaching (SFCBC) could improve well-being and reduce stress in a working population suffering from moderate effects of work-related stress. The methods used by psychologists in that particular organisation mainly involved psychotherapy or different support interventions for clients suffering from various stress-related conditions. These conditions originated, for example, from psychosocial factors at work; such as high demands, change processes or a poor work/life balance; but also in tandem with factors originating at home, like divorce, ill-health, relatives or children being ill and in need of support. The methods used by the company at that time were more focused on curing existing psychological conditions, and there was a gap in terms of how to work more proactively, to maintain or improve individuals' psychological health in sometimes challenging complex working environments.

This gap in understanding concerning more preventative methods was the reason behind the research question of this thesis. Was it possible to find a method that could help employees and leaders at an early stage, so symptoms of stress, anxiety and depression could be avoided; and could this method act as a personal resource moderating potential

work demands and enhancing well-being? Was it possible to close the gap in the understanding of preventative psychological methods by introducing a coaching process building on coaching psychology, where the dialogue is centred on work-related areas and how to master them in a way that is helpful in achieving the coachee's personal goals? The coaching process was thought to act as a facilitator, enabling personal detection of early signals and issues and creating awareness – which in turn, was thought to enable identification of current issues by finding solutions to potential stressors in the workplace.

Chapter 1 provides an overview of this doctoral thesis, commencing with a summary of coaching psychology definitions, including a comparison with other similar disciplines such as counselling and organisational psychology. The lack of studies of contemporary coaching research performed at work is discussed before the overview and structure of the thesis are set out.

1.1 Coaching Psychology

Coaching psychology was defined at the beginning of 2000 and sprung out of the need to define the field further, given that many psychologists were working in other areas – for example, corporate environments (not clinical contexts) – while using adapted methods originating from psychotherapy and counselling. Since coaching psychology had evolved from closely connected fields like counselling and psychotherapy, it was essential to separate it from other areas within the psychology domain. One of the first definitions was formulated when the Australian Psychological Society's Interest Group in Coaching Psychology was set up in 2002, describing coaching psychology as:

> an applied positive psychology, draws on and develops established psychological approaches, and can be understood as being the systematic application of behavioural science to the enhancement of life experience, work performance and well-being for individuals, groups and organisations who do not have clinically significant mental heath [sic] issues or abnormal levels of distress (APS IGCP, n.d).

A closely related definition describes it as 'enhancing well-being and performance in personal life and work domains, underpinned by models of coaching grounded in established adult learning or psychological approaches' (adapted from Grant & Palmer, 2002). Another definition by Grant (2003) describes coaching as a 'result-oriented,

systematic process in which the coach facilitates the enhancement of life experience and goal-attainment in the personal and professional life of normal, non-clinical clients' (p. 254).

Positive psychology and coaching psychology can also be viewed as complementary fields that share a common goal, the enhancement of well-being (van Nieuwerburgh, 2012). Coaching as a general method is practised in many fields: executive development, health, sport and personal development.

In a recent review of the developing journey of coaching psychology research, Passmore and Theeboom (2015) state that 'there has been considerable debate about coaching and coaching psychology. Are they the same thing or different things?' (p.30). The authors argue that a more conclusive definition would erase the boundaries between coaching psychology and coaching, suggesting 'coaching psychology is the scientific study of behaviour, cognitive and emotion within coaching practice to deepen our understanding and enhance our practice within coaching (Passmore, 2010; Passmore & Theeboom, 2015, p.31). The basis for this argument is that coaching psychology research, from a historical and developmental viewpoint, has moved away from definitions towards areas of practice and impact. Although coaching psychology is also connected to psychologists as a profession, involving a registration and accreditation process linked to the definition, which makes Passmore and Theeboom (2015)'s argument less convincing.

1.1.1 Coaching compared to counselling, organisational and clinical psychology

In 2007, Grant and Cavanagh summarised and compared the Australian Psychological Society's definitions and the focus of interventions of three closer connected branches of psychology, counselling, industrial/organisational (I/O) and clinical psychology, to coaching psychology. Counselling psychologists are described as having a stronger focus on therapeutic techniques for the betterment of distress, while clinical psychologists focus mainly on curing psychopathology. Lastly, the role of I/O psychology is described as mainly focusing on 'psychological dynamics in the service of organisational level goals' (p.241). Grant and Cavanagh conclude that:

> The explicit focal point of coaching psychology differs subtly but significantly from each of the above foci. Coaches seek to assist their clients to articulate self-congruent goals and aspirations and to systematically work toward their achievement. These goals may be

> developmental in nature or at the level of performance or particular skills acquisition (p. 241).

Grant (2006) summarises an overview of central themes in coaching definitions referencing previous research: assumptions of the absence of severe mental health problems in the client (Bluckert, 2005); that the client is resourceful (Berg et al., 2005); engagement in finding solutions (Hudson, 1999); and that coaching is an outcome-focused activity which seeks to foster self-directed learning through collaborative goal setting, brainstorming and action planning (Greene & Grant, 2003).

A meta-study on published coaching-related research revealed few published papers (93 papers) until 2000; 425 papers or PhD dissertations published up to May 2009 (Grant et al., 2010a); and that the empirical coaching literature is still relatively small. This situation has created a growing requirement for the evaluation of coaching interventions within a workplace environment to support existing research (Blessing White, 2009). While coaching is often considered as a useful tool for individual and organisational development (Grant et al., 2010), the lack of a quantitative review on the outcomes of coaching makes it prone to scepticism (Bono et al., 2009). The critique regarding coaching outcomes or effectiveness is based mainly on a) the relatively small amount of empirical coaching literature; b) lack of firm theoretical foundations and absence of clearly articulated, coherent research agendas (Spence & Oades, 2011).

1.1.2 Coaching in an organisational context

Arnott and Sparrow (2004), whose study looked at 1,153 organisations across the UK, found that organisations used coaching for three main reasons: 1) supporting a strategic initiative; 2) supporting leadership development; 3) responding directly to individual request. Workplace coaching can be described as including both executive coaching and coaching delivered to non-executive employees in a workplace setting (Grant et al., 2010). Workplace coaching can also be described as one-to-one learning and development intervention that uses a collaborative, reflective, goal-focused relationship to achieve professional outcomes valued by the coachee (Smither, 2011). Workplace coaching can be delivered by both external coaching providers and in the form of internal coaching interventions, delivered by employees (Grant et al., 2010).

In the last two decades, the use of coaching methodologies to enhance performance and development in organisations has increased substantially (Theeboom et al., 2014). Even though coaching psychology today is a more established and increasingly popular

change methodology in organisations (Grant et al. 2010), Grant and Cavanagh (2011) concluded that only three randomised controlled studies of coaching in the workplace had been performed. Theeboom et al. (2014) performed a meta-analysis to explore whether coaching could be applied effectively in an organisational context. Of 107 papers, 18 studies matched the inclusion criteria for the analysis: 1) quantitative data on effects of coaching; 2) coaching provided by professional trained coaches or peers; 3) where the study sample represented a non-clinical population. The results suggested that coaching could be an effective method for improving the functioning of individuals in an organisational setting; specifically, that coaching could have a positive effect on coachees' goal attainment, performance, skills and work attitudes; with medium-sized positive effects on coachees' well-being and coping. The robustness of the results varied depending on research design; studies which included a control group showed smaller effect sizes than those lacking them (Theeboom et al., 2014).

Research into coaching has shown effects ranging from increased goal commitment and attainment; environmental mastery (Spence & Grant 2007); increased cognitive hardiness, mental health and hope (Green et al. 2007); reduction of workplace stress and anxiety (Gyllensten & Palmer 2005); improvements in transformational leadership (Grant et al. 2010; Cerni et al. 2010); and the enhancement of outcome expectancies and self-efficacy (Evers et al. 2006). Furthermore, a number of studies have also shown effects on greater goal striving and well-being, reduced stress and depression, and reduced tendencies toward perfectionism (Grant, 2001, 2003, 2008; Grant et al, 2009; Green et al., 2006; Green et al., 2007; Gyllensten et al, 2010; Grbcic & Palmer, 2006; Kearns et al.,2007; 2008; Libri & Kemp, 2006).

When it comes to the relationship between coaching and well-being, Grant (2009) theorises that several factors could explain the coaching intervention's positive effects. First, goal fulfilment enhances well-being, particularly if the goals are personally valued (Sheldon et al., 2001). Second, the effects of social support and a sense of independence, central to the coaching process (Grant, 2009), may buffer effects of stress factors on well-being (Daniels & Guppy, 1994). Self-acceptance has also been shown to be related to well-being in the workplace (Feilder & Bond, 2004), with increased self-acceptance and self-confidence occurring as a result of coaching (Grant, 2009).

1.1.3 Coaching approaches

There are several different coaching approaches, such as behavioural coaching and the popular GROW model (Graham, 2010); existential approaches (Spinelli & Horner,

2007); gestalt coaching (see Allan & Whybrow, 2007); and psychodynamic coaching (Roberts and Brunning, 2007). The roots to cognitive behavioural coaching (CBC) originate from cognitive behavioural therapy (CBT, Beck et al., 1979) an intervention which is the most widely used evidence-based practice for treating mental disorders.

CBT is based on a combination of the basic principles of behavioural and cognitive psychology, defined as a 'time-sensitive, structured, present-oriented psychotherapy directed toward solving current problems and teaching clients skills to modify dysfunctional thinking and behaviour' (Beck Institute for Cognitive Behavior Therapy, n.d). It is used to treat specific problems related to a diagnosed mental disorder. CBC developed in the early 1990s as practitioners working in private practice as part of, for example, organisational consultancy, started to adapt cognitive behavioural and problem-solving therapies to better fit requirements of clients in non-clinical settings (Palmer & Szymanska, 2007). CBC is described as 'an integrative approach which combines the use of cognitive, behavioural, imaginal and problem-solving techniques and strategies within a cognitive behavioural framework to enable coachees to achieve their realistic goals' (Palmer & Szymanska, 2007, p. 88). Neenan and Palmer (2012) describe CBC as 'a collaborative, goal-directed endeavour using multimodal learning methods to help individuals develop their capabilities and remove any psychological blocks that interfere with this process' (p.2). CBC has become one of the most widely used models of coaching within coaching psychology (Palmer & Whybrow, 2006). With an evidence-based approach and a solid theoretical base, the method is described as easy to understand and apply, as well as effective (Grant et al., 2009).

Whatever the theoretical background, the coaching relationship could be viewed as one where the coach and coachee form a co-operative alliance by setting defined goals and working out concrete actions in steps which hopefully lead to the desired goal (Kemp, 2008). The coachee is responsible for establishing such plans, and the coach's role is to help keep the coachee on track. Evaluating progress over time to create an intellectual forum for brainstorming and self-reflection (Grant et al., 2009), develop action plans for change, and encourage the coachee to increase their self-awareness in areas like thinking, mood states and emotions (Becket, 2000).

1.1.4 Coaching, coping and goal attainment

Coaching techniques often aim at affecting coping strategies. One of the most used definitions of coping is Folkman and Lazarus (1980)'s description: 'The cognitive and behavioural efforts made to master, tolerate, or reduce external and internal demands

and conflicts among them' (p. 223). Coping is also a vital part of cognitive behavioural therapy, which focuses on the development of personal coping strategies that target solving current problems and changing unhelpful patterns in cognition (e.g., thoughts, beliefs, and attitudes), behaviours, and emotional regulation (Beck, 2011). Several studies have found coaching to have positive effects on coping mechanisms such as resilience (Grant, Curtayne, & Burton, 2009) and mindfulness (Spence et al., 2008).

Apart from coping strategies and CBC, goal attainment is also an essential part of the solution-focused coaching approach (see Chapter 3), with its origin partly in goal-setting theory (Locke and Latham, 2002). Setting specific goals affects coaching outcomes by creating a structure for focus and attention. The goal attainment process can then affect sustainability, especially when the targets are challenging. Other factors that affect goal attainment include:

1. How committed the individual is to achieving the goal
2. Belief that the goal is important and can be achieved
3. Feedback received in progress toward goal achievement
4. The ability to use strategies that are relevant to the task, especially when the targets are challenging (Locke & Latham, 2002).

Grant (2014) examined predictors of coaching success by exploring four different factors: 1) satisfaction with the coach-coachee relationship; 2) autonomy support; 3) the extent to which the coaching relationship was similar to an 'ideal' coach-coachee relationship; 4) a goal-focused coach-coachee relationship. The findings suggested that mere satisfaction with the coaching relationship did not predict successful coaching outcomes. Instead, the main conclusion was that 'a goal focused coach-coachee relationship was a unique and significantly more powerful predictor of coaching success' (Grant, 2014, p. 18).

To summarise the coaching psychology field, during the last 20 years the amount of published research has grown, but the overall research body is still relatively small compared to other well-established fields like CBT; and studies in coaching psychology tend to have smaller sample sizes. There seem to be variances between studies in sample context and instruments used to assess outcome, making it difficult for researchers to compare outcomes. Most coaching research is performed without including work environment factors and tends to look for intrinsic, rather than extrinsic, factors and changes.

Additionally, the specific behavioural change agents, factors responsible for the potential change in behaviour which affects outcome measures like subjective well-being, are seldom described. Further attention to these change agents could help advance understanding of which components of the coaching intervention contribute to specific outcomes in research. The coaching field at large employs a plethora of different methods; to capture possible effects, it was essential to define one evidence-based coaching method which could be used in the form of different applications. Consequently and purposely, a solution-focused cognitive behavioural coaching method was chosen: PRACTICE (Palmer, 2007, 2011).

When this research process started in 2008, the coaching field and coaching psychology was a relatively new, emerging domain. Defining and choosing the method was the first step towards creating a better foundation for the adaptation process which followed. It was important not only to ensure that what was being explored was actually what was being measured, but also that the different modalities of coaching were built on a similar method, permitting comparisons between application groups. The study also aspired to include a research group in team coaching as at face value, coaching groups or teams in an organisation seemed more effective than individuals. In preparation for the team-based method, the individual coaching method was adapted to a team condition, published in a paper (Hultgren et al., 2013), and further adapted to assist in psychosocial risk assessments in groups. This research group was later removed from the main study design due to the difficulties it would create in terms of comparing a group with an individual condition.

Another research group added during the study was the self-coaching condition; a 'paper-pen' version was initially planned. This version was later developed into a more user-friendly programme; the creation, adaptation and pilot study was published (Hultgren et al., 2016). The question was if it would be possible to use SFCBC self-help programmes – for example, on company intranets – which could help detect early signals of ill-being or increase well-being at work. This could potentially close the gap in accessibility to preventative psychological methods in the workplace. This development also mirrored the (at the time) emerging virtual or eHealth field, as well as the virtualisation of communication through Lync and later Skype for Business, which opened up possibilities for Skype coaching instead of purely telephone-based interventions in the study.

In conclusion, the main research objective was to explore a non-clinical work population in the technology and manufacturing industry in Sweden. This is one of the first studies to consider the impact of coaching as a personal resource mediating the individual's perception of factors relating to the psychosocial work environment. Three different conditions of

SFCBC were compared with a control group: face-to-face, Skype, and a virtual self-coaching programme. The main hypothesis was that a significant positive increase would be observed in measures of well-being and goal attainment at completion and three months post-coaching in all three conditions, and additionally, that a significant positive decrease would be observed in psychosocial risk factors (demands, control, support, relationships, role and change) measured at the completion of the intervention and three months' post-coaching.

The road map for this thesis includes a literature review exploring coaching psychology in the context of the working environment and organisational psychology. This connects the coaching field with theories in stress and well-being to enhance understanding of how coaching interventions can fit in and which role coaching could have in emerging fields, including virtual psychological methods and eHealth. SFCBC methods are explored, along with why this approach was chosen compared to others. Challenges, difficulties and opportunities of working with emerging virtual and preventive methods are also described, with a focus on increasing well-being in non-clinical work populations where the economic incentive is less evident, as opposed to using psychological methods like psychotherapy in clinical groups.

1.2 Research Objectives

Based on the discussion above, this PhD thesis aimed to fill an existing research gap in coaching psychology: to identify and examine coaching as a proactive intervention in an organisational context. Another objective was to further understanding of whether SFCBC could act as a personal resource affecting subjective and psychological well-being.

The detailed research background will be explained in Chapter 2. The research objectives were addressed in separate but interlinked studies. The overall research process involved five steps:

1) Study 1: inductive quasi-experimental mixed method design, forming an *a posteriori* hypothesis (see Chapter 5).
2) Study 2: deductive explorative mixed method design study, aiming to test the design and hypothesis (see Chapter 6).
3) Study 3: a team coaching method was developed as a result of Study 2, and a paper published (Hultgren, et al., 2013) (see Appendix K). A conference paper was presented with preliminary results from an explorative, descriptive study combining team coaching with psychosocial risk analyses (Hultgren et al., 2016b).
4) Study 4: a computerised coaching programme was developed and piloted as a result

of the findings from Study 2 (Hultgren et al., 2016a) (see Appendix L).
5) Study 5: experimental randomised controlled design (see Chapters, 7, 8 and 9).

1.3 Thesis Structure and Outline

The sections above have addressed some fundamental concepts of coaching and coaching psychology, and the research objectives of this thesis. The following provides an overview of the thesis structure.

Chapter 2 summarises issues and challenges in contemporary stress theories, psychosocial work environmental models and well-being definitions, concepts and perspectives, and explores how proactive coaching interventions can fit into this theoretical context. Several critical areas are covered: economic incentives for proactive interventions in organisations; the role of work environment factors, specifically resources and how they can affect employees; current interventions in organisations and how coaching interventions could be integrated into existing models.

Chapter 3 discusses the specific research methodology. It investigates the theoretical foundation of the PRACTICE model (Palmer, 2011), a solution-focused cognitive behavioural coaching (SFCBC) approach, and describes specific behavioural change agents. The differences between the applications of the PRACTICE framework used in this study are also set out.

Chapter 4 explores issues and challenges in the contemporary development of virtual or digitalisation of psychological interventions or methodology. The term Psychological Information Communication Technologies (PICT) and different levels of interventions are defined. A Stepped Wellbeing Model is proposed, which attempts to clarify and integrate different 'intervention intensity' levels and corresponding psychological interventions.

Chapter 5 presents the first pilot study (Study One), with a descriptive quasi-experimental design examining if SFCBC could act as a proactive, feasible method in a population of employees and enhance their well-being. Additionally, through analysis of data collected, it examines the working hypothesis, to support the building of a hypothesis for future research. 16 participants were recruited, all of whom had actively been seeking assistance at the healthcare unit for work-related stress. A combination of quantitative and qualitative data was collected to ensure a broader range of data collection at two time points: pre and three months' post-coaching.

The qualitative results collected through face-to-face interviews indicated that the SFCBC method affected behavioural and cognitive components and was feasible to utilise in a work population. However, the study was performed during an economic recession, and no control group was possible. This led to changes in design and study context.

Chapter 6 describes the second pilot study (Study Two), an explorative mixed method design study. This aimed to test the hypothesis that information communication technology combined with solution-focused (SF) and SFCBC in the form of a telephone and internet coaching programme would enhance psychological and subjective well-being compared to the control, measured over time. Another aim was to pilot and explore the effects of the randomised design by analysing metadata and testing the feasibility of a self-coaching manual. The study consisted of 37 participants randomly assigned to four research groups: telephone, internet programme, self-coaching, and control. The results were affected by relatively high attrition rates, which led to changes in statistical analysis and lowered the validity of the findings. Based on the qualitative data, telephone coaching seems to have been the most feasible method compared to the other applications. The results also demonstrated a need for alterations in design, primarily concerning the recruitment process, and the design/construction of the self-coaching method.

Chapter 7 outlines the method utilised in the last, main study (Study Three) of this thesis. This aimed to investigate whether different applications of psychological SFCBC, including a goal attainment process, could increase psychological and subjective well-being; and act as a personal resource, moderating potential demands and psychosocial risk factors in the work environment. 86 participants were recruited and randomised into four conditions: face-to-face, Skype, self-coaching, and control. A combination of quantitative and qualitative data was collected at three time points, pre, post (at completion) and three months' post-coaching.

Chapter 8 presents the results from Study Three: namely, that the Skype application of the PRACTICE framework had a direct effect on subjective well-being, and SFCBC had mediating effects on the participants' perceptions of demands (Skype) at work. The study also gave information about which goals participants chose to work with (like role ambiguity) to increase their SWB at work, with solutions chosen to increase, for example, job clarity through support-seeking behaviour and development of cognitive behavioural aspects.

Chapter 9 primarily discusses the findings of Study Three, and the practical and theoretical implications for proactive, evidence-based coaching interventions performed at work. The chapter discusses coaching as a resource, the effects of SFCBC methods and the differences

between face-to-face and virtual or electronically delivered coaching interventions. Limitations of the study and suggestions for further research and application are set out.

Chapter 10 concludes the main findings, making suggestions for proactive coaching interventions and the development of eHealth interventions at a national and company level.

Chapter 2: Literature Review

2.1 Introduction

This chapter describes stress theories and models, well-being research and the psychosocial models. This chapter aims to bring different theoretical fields together in connection to coaching psychology; or in other words, to describe how coaching psychology can put organisational psychology into practice. Can coaching psychology or, more precisely, solution-focused cognitive behavioural coaching (SFCBC) provide a missing cornerstone: the identified gap that initialised this research study? How can coaching interventions as a practical and applied method fit into current organisational concepts and stress theories?

For almost a century, a large number of researchers have contributed to the stress theory field, increasing our understanding of the different factors that affect employees at work. Some theorists focus on what creates distress from a systemic (within the individual) standpoint, while others describe transactional processes: the stress process or interaction between the individual and the environment.

Historically, stress theories were written from an individual perspective, focusing on the biological or physical symptoms that occurred when an individual experienced stress for any reason. Later, a transactional perspective was introduced, exploring factors occurring in the interaction or process between the individual and the environment. In the next step of this evolution, specific environmental or organisational factors were identified, described as risk factors that could affect groups of individuals.

The environmental perspective on stress resulted in the development of a specific Health and Safety field, and work environmental legislations were set up in many countries worldwide: with the responsibility for companies to actively detect and remove risk factors through different proactive actions. Attention was later given to factors in an individual or employee's environment that could help sustain or maintain psychological health or well-being. The concepts of stress and well-being are intertwined and closely connected, even though at face value, they differ. It can be argued that they represent the outer points of an individual's psychological health spectrum, where the experience of stress or distress represents a more negative side and well-being or mental health is situated at the other end.

This chapter will be divided into four main sections:

1) Historical overview of stress theories
2) Health and Safety perspective

3) Psychosocial work environment models
4) Well-being theories

The literature search was based on search criteria and the terms, ‘stress’, ‘stress theories and models’, ‘work and stress’, ‘coaching stress’, and ‘well-being’. Literature searches were mostly performed through PsycINFO, The City University of London Library search engine, coaching psychology research journals, EU and Health and Safety Executive (UK) databases (psychosocial work environment models/statistics).

2.1.1 Historical overview

The term ‘stress’ is used in a variety of fields to describe behavioural, biochemical, physiological and psychological effects. It was first used during the eighteenth and nineteenth century, a time of industrialisation and transformation in society. Physical science, like engineering, used the word ‘stress’ when describing the process and effects of, for example, adding external pressure to materials and their reactions. Later, social sciences and medicine adopted the word to describe different physical and psychological reactions in individuals. In 1915, Walter Bradford Cannon, an American physiologist and Professor at Harvard University, was the first scientist to describe the term ‘stress’ in relation to individuals, describing the ‘fight-or-flight’ response (Cannon, 1915).

In 1936, endocrinologist Hans Selye published a paper on the general adaptation syndrome (GAS) describing a theory of ‘systemic stress’, based on physiology and psychobiology explaining the effect of chronic stressors on the body (Selye, 1936). Selye discovered that both negative and positive experiences triggered a physical response, defining negative stress reactions (distress), and positive perceived reactions (eustress). The biomedical model was later criticised for not taking into account the relationship between the individual and the environment. Lalonde (1974) argued that health is created by complex relations between the individual and the society, e.g., the environment, and stated that the biomedical model was too limited to explain what creates health.

When in 1966, Lazarus published his theory of stress, the focus was on the relational aspects between the individual and their environment, rather than specific patterns of physiological or subjective reactions. Lazarus and Folkman (1984) argue that in the presence of a ‘garden variety’ of stressors, we can ‘no longer pretend that there is an objective way to define stress at the level of environmental conditions without reference to the character of the person’ (p. 19). Lazarus and Folkman (1986) define psychological stress as ‘a relationship with the environment that the person appraises as significant for his

or her well-being and in which the demands tax or exceed available coping resources' (p. 63). Advocates for the psychological/transactional models of stress emphasise the role of perceptual and cognitive characteristics, which are essential in explaining individual differences regarding their response to stress (Cox & MacKay, 1981).

What researchers like Cox, MacKay, and Lazarus brought to light was that stress reactions experienced by individuals were not only a biomedical reaction but foremost a psychological response dependent on their environment. The perception or interpretation of the event, the perceived ability of the individual to cope in a particular context or environment, would in turn, affect the response that either could reduce or preserve well-being in stressful situations in life or working life. This third view of the stress concept is different from the 'engineering' and physiological models. Stress was described not only as a stimulus or response reaction but as a dynamic process that occurs as an individual interacts with their environment (Cox et al., 2000; Cox & Mackay, 1981).

The environmental factors were named 'stressors' and explained as demands made by the internal or external environment that upset balance, thus affecting physical and psychological well-being, and requiring action to restore balance (Lazarus & Cohen, 1977). With this perspective, stress is a result of a transaction between the individual and the environment (Lazarus & Folkman, 1984) and can, therefore, be triggered in this transaction. With a transactional perspective, the cause of stress can only be understood in the context of a process, involving stressors, strain and coping (Cooper et al., 2001); the cognitive approach describes stress as occurring when perceived pressure exceeds the person's ability to cope (Palmer et al., 2003b). Health and Safety Executive (2001) defined stress as an adverse reaction to excessive pressures or other types of demands placed on an individual. The European Agency for Safety and Health at Work (2009) describes work stress as when the demands of the work environment exceed the workers' ability to cope with (or control) them.

2.1.2 Economic implications of stress conditions

Against a background of mounting research evidence (Cooper & Payne, 1988), it has become clear that stress has a dysfunctional impact on both individual and organisational outcomes (Cooper & Cartwright, 2013). Stress reactions are not 'just' stress reactions and can be accompanied with decreased cognitive abilities: affecting attention, concentration and memory (Maslach & Schaufeli, 2002; Van der Linden et al., 2005; Schwabe et al., 2012), and psychological states such as depression and anxiety (Hammer et al., 2004; Tennant, 2001; Thorsteinsson et al., 2014; Strazdins et al., 2004; Wang & Pattern 2001).

As such, it can impact on satisfaction with life and well-being in general. The Health and Safety Executive (HSE) also highlights the complexity surrounding mental health problems and concludes that 'in practice, it can be hard to distinguish when "stress" turns into a "mental health problem" and when existing mental health problems become exaggerated by stress at work' (HSE, 2017, p.1).

According to the HSE, depression, anxiety and work-related illnesses accounted for 488,000 cases in the UK: equivalent to 1510 people per 100,000 workers. In 2015 and 2016, a total of 11.7 million days was lost to work-related illnesses (an average of 23.9 days per case) (HSE, 2016). The estimated costs of work-related stress vary from £3.8 billion to £9.6 billion depending upon the source (HSE, 2009). The Sainsbury Centre for Mental Health (2007) estimated the costs of mental health problems at work to be much higher than the HSE: staff turnover, £2.4 billion; sickness absence, £8.4 billion; reduced production, £15.1 billion. In Europe, 367 million working days were lost in 2007 due to work-related health problems (Eurostat, 2010). Analysis of the 3rd European Working Conditions Survey indicated that symptoms like anxiety, irritability, sleeping problems, stomach ache, headaches, and overall fatigue are closely related to stress (Daniels, 2004).

Studies in the EU and beyond (Cox et al., 2000) suggest that between 50% and 60% of all lost working days are related to stress. In the US, the 2014 'Stress In America' survey revealed that work is the second most commonly reported significant source of stress (60%) (APA, 2015). Eurostat (2017) showed that in 2013, 8% of the EU population reported having had work-related health problems during the previous year, over half (55%) of whom had been absent from work as a consequence. The most reported work-related health problem was a muscular skeletal disorder (60%), followed by stress, depression and anxiety (16%).

Comparisons performed between different countries in the EU between 2007 and 2013 identified the most significant increase in work-related health problems in Sweden (6.8 percentage points) (Eurostat, 2017). According to The EU Labour Force Survey, in 1999-2007, nearly 28% of respondents, corresponding to approximately 55.6 million European workers, reported that their mental well-being had been affected by exposure to psychosocial risks (European Agency for Safety & Health, 2016). Too little time and too much work were the most commonly selected main risk factors (23%). Among workers with a work-related health problem, 'stress, depression or anxiety' was reported as the most serious health problem by 14% (European Commission, 2010).

One explanation of why work can affect employees can involve unresolved job-related problems and unattained work goals which may lead to persevering cognitions, e.g., worrying, rumination (Brosschot et al., 2005): which in turn lead to continued physiological arousal and incomplete physiological and psychological recovery after work. In the long run, incomplete recovery might lead to irritation, exhaustion and disengagement: affecting the ability to perform and ultimately leading to impaired health (McEwen, 1998).

The effects of stress are not merely psychological; it can also affect physical and social health, innovation and productivity (Kawakami & Haratani, 1999; Kristensen, 1996; Stansfeld et al., 1999; Devereux et al., 1999). Frese and Fay (2001) argue that the challenges which companies face today are different from those of previous decades and include 'global competition, the faster rate of innovation, new production concepts, and changes in the job concept' (p.6).

Preventing and promoting well-being in the workforce to minimise the impact of stress is an area of focus for many organisations. A report prepared by the EU's Executive Agency for Health and Consumers (EAHC, 2013), called the Matrix, examined the cost-effectiveness of different types of interventions focusing on mental health promotion and mental disorder prevention in the workplace, including improvements in the work environment. The findings, based on figures obtained in selected European countries, imply that every €1 of expenditure in promotion and prevention programmes generate net economic benefits, over one year, of up to €13.62 (EAHC, 2013). Prevention and early intervention must be prioritised: the NHS Mental Health Taskforce: Engagement Report (2015), which looked at how to change the UK's mental health services by 2020, expected a 40% increase in the need for psychological therapies over the following 3-4 years (NHS, 2017),

> We know that the presence of poor mental health can drive a 50 per cent increase in costs in physical care (p.19). By 2020/21, it is expected that an extra 600,000 people with common mental health problems will access psychological therapies each year – an increase from 900,000 to 1.5 million people (NHS, 2017).

The report also notes that 52% of 20,473 people surveyed mentioned access in their top three priorities for change; 33% wanted a choice of treatment, and 25% mentioned prevention as

necessary. Additionally, funding (21%) and stigma (19%) were referred to as important (NHS, 2015).

2.2 Stress theories and models

A search of PsycINFO (journals and books) using the search terms ‘stress theory’ and ‘occupational stress’ was performed, resulting in 318 references. In this section, the most referenced and prominent theories and models are described chronologically.

2.1.1 Job Demand-Control model

One of the first models described in the literature was the Job Demand-Control (DC) model, developed by Karasek (1979). The model identified job demands and job control as the main factors or job characteristics influencing well-being and is one of the most widely cited work stress models (Karasek et al., 1990; Karasek, 2008). The core hypothesis highlights that high job demands are not harmful in themselves, but when combined with low decision latitude, could result in psychological strain (Wall et al., 1996). According to Karasek (1979; Karasek & Theorell, 1990), the demand–control model consists of two interrelated dimensions, work demands and the level of control which employees have, to meet these demands at work. The model postulate that work with simultaneously high demands and low control produces the most stressful responses and is most damaging to health: the so-called strain hypothesis (Belkic et al., 2004; de Lange et al., 2004). ‘Strain can be defined as the individual's psychological, physical, and behavioral responses to stressors’ (Cooper et al., 2001, p.14). The stressor categories most often described are extra organisational, organisational, group and individual (Luthans, 2011).

The second hypothesis in this model predicts that a combination of high demands and high decision latitude will increase work motivation, learning, and personal growth (De Jong et al., 2010). A salutogenic process creates positive health when employees have high control with regard to their work, which in turn will help buffer the stress caused by high work demands. This latter process is theorised to lower stress to the levels of work experienced by employees. The model has proved reliable in predicting workers’ psychological well-being, job-related well-being, and burnout (Häusser et al., 2010; Salanova et al., 2002).

Although a large number of empirical studies on the DC model have been performed, a relatively small number have shown support for the core assumption: stating that the interaction of demands and decision latitude lead, in fact, to an elevated risk of

strain (de Jong, 2010). Several reviews (Fox et al., 1993; Schnall et al., 1994; Vander, Doef & Maes, 1999), though, provide empirical support for Karasek (1979)'s hypothesis that job demands, especially those of high workload, interact with control perceptions to explain physical and medical health (Mackay et al., 2004). It has also been argued that not only the interactions between these factors impact or can explain stress reactions; rather, control and demand factors individually influence health (Stansfeld et al., 2000).

2.1.2 Job Demand Control-Support Model

The DC model was later developed into the Job Demand Control-Support (JDC-S) model, incorporating workplace support (Johnson & Hall, 1988; Johnson et al., 1989) where social support is theorised as having a mitigating influence (Schaufeli & Bakker, 2004). Johnson et al. (1989) suggest that social support received from colleagues or supervisors reduce damaging effects of stressful work situations. The JDC-S model postulates that jobs which are high in what they demand, low in control and low in workplace social support are the most stressful and produce the most negative health impacts (Michie, 2002; Wilkinson & Marmot, 2003). In a recent review by Häusser et al., (2010), involving 83 studies, support for the model was found on the effects of demands, control, and social support on psychological well-being in larger sample sizes. However, support for the model was less conclusive in longitudinal, cross-sectional studies.

2.1.3 Conservation of Resources Theory

Unlike the models described so far, resource theories of stress are not primarily concerned with factors that create stress, but more with resources that sustain well-being. In 1989, Stevan Hobfoll published the Conservation of Resources (COR) theory. COR has become one of the most widely cited theories in organisational psychology. This theory has similarities with other models, in that it simultaneously considers environmental factors and individual cognitions, (Lazarus & Folkman, 1984) social psychological and social-cognitive models of motivated action, including social cognitive theory (Bandura, 1986). Hobfoll asks 'what people employ to offset resource loss or to gain resources? The answer to this question is that they employ resources that they possess or they call on resources available to them from their environment' (Hobfoll, 1989, p. 517).

Hobfoll argues that Lazarus' transactional model over-emphasizes the role of cognitive processes, and gives insufficient attention to the environment itself. 'Individuals strive to obtain, retain, protect and foster those things that they value' (Hobfoll, 2001, p. 341). In relation

to the working environment, these valued resources are factors that positively enhance or sustain employee well-being and can be utilised when adjustments to different situations at work are needed (Dewe et al., 2012). These can include autonomy, feedback and rewards for successful job performance (Hakanen et al., 2008). Other features that contribute are: social support from work colleagues and organisational support for individuals (supporting their needs), which in turn can reduce stress and burnout (Halbesleben, 2006), as well as enhance well-being (Luszczynska & Cieslak, 2005).

Hobfoll (2001) theorises that resource losses represent a significant threat to survival, and have primacy over resource gains when someone is in a challenging or stressful situation. This is explained by the argument that individuals tend to focus more on resource losses than gains because losses can undermine their ability to survive. Depletion of resources is associated with stress, whereas just the threat of depletion is associated with anticipatory stress (Hobfoll, 1989). In a work environment context, resource gains are essential for increasing overall well-being (Dewe et al., 2012)

Two other principles of COR theory are important: resource spirals and resource caravans. The concept of spirals is based on the notion that when individuals lack resources to deal with stressful events, not only are they more vulnerable, but 'loss begets further loss' of resources (Hobfoll, 2001, p. 354). Resource gains can also spiral, such as when successful performance leads to further achievement, although Hobfoll has suggested that loss spirals can have greater impact on well-being than gain spirals. In addition to gain/loss spirals, COR theory also includes the concept of resource caravans, suggesting that resources can accumulate. An example is the caravanning of self-efficacy with optimism. For example, the availability of social support may bolster feelings of self-esteem, leading individuals to feel more comfortable about seeking further social support in the future (Hobfoll, 2001).

2.1.4 Job Demand – Resource Model

The Job Demand – Resource model (JD-R) (Bakker et al., 2003; Demerouti et al., 2001; Demerouti et al., 2001) has similarities to COR theory, and could be said to be a development of it: with resources playing a critical part in work-specific contexts. The theory describes the importance of a balance between demands and resources at work, and the effects when an imbalance occurs: either a negative 'energy depletion effect' or a positive well-being (or motivational) effect. Shaufeli and Bakker (2004) also refer to Seligman and Csikszentmihalyi (2000), who were involved in creating the new field of Positive Psychology, which advocates the need for a shift in perspective from a traditional focus on mental illness to a perspective of human strengths and what creates well-being.

Shaufeli and Bakker (2004) argue for the importance of this switch in perspective when it comes to theoretical occupational stress models: not primarily focusing on the factors that create stress, but work factors or resources that can bolster favourable conditions or optimal functioning.

The JD-R model can also be understood as a specific work-related application of the more general COR theory (Hakanen, 2008). The model was introduced as an alternative to others, such as the Demand-Control model. Bakker and Demerouti, (2007) argue that previous models 'have been restricted to a given and limited set of predictor variables that may not be relevant for all job positions' (p. 309). Incorporating a wider range of working conditions into the analyses, the JD-R model includes both negative and positive indicators and outcomes of employee well-being. It proposes that chronic and high job demands may become stressors when high effort is required, exhausting employees' resources and causing health impairments. Job resources can also have a motivational aspect, leading to positive outcomes such as engagement (Bakker & Demerouti, 2007; Gan & Gan, 2014).

Demerouti et al. (2001) suggest that even though jobs can increase learning, motivation and lead to engagement, regarded as positive, this process can also lead to strain. They theorise that the reason for this effect is that 'much of the energy mobilised by high demands could not be translated into effective problem solving (i.e. job control) with the consequence of much residual strain' (Demerouti et al., 2001, p. 284). Job resources are especially relevant under high straining conditions (Bakker et al., 2007a; Bakker et al., 2007b). Accordingly, Bakker et al., (2005) found that high job demands and low job resources lead to higher levels of exhaustion and cynicism.

Similarly, Hu, Schaufeli, and Taris (2011) found that high job demands and low job resources lead to more burnout and decreased engagement. In working environments with sufficient resources, they may act as a buffer against the negative impact of demands on employee health and strain (Bakker & Demerouti, 2007; Bakker et al., 2005; Hu et al., 2011; Xanthopoulou et al., 2007).

Job resources were defined as 'those physical, social, or organizational aspects of the job that may do any of the following (Demerouti et al., 2001):
(a) Be functional in achieving work goals
(b) Reduce job demands and the associated physiological and psychological costs
(c) Stimulate personal growth and development" (p. 501).

Examples of job resources are feedback, job control and social support (Schaufeli & Taris, 2014). The literature contains extensive evidence indicating that job-related resources have a health-promoting effect on well-being (Karasek, 1979; Schaufeli & Bakker, 2004; Siegrist, 1996). The JD-R model looks at the interaction between demands and resources and points to job demands leading to strain (impaired well-being) when resources are lacking. Similar to Hobfolls' COR theory (2001, 2002a), this model emphasises that resources are not only necessary to address job demands but also crucial in their own right (Schaufeli & Bakker, 2004; Bakker & Demerouti, 2007, p. 312), 'and the means to the achievement or protection of other valued resources'. The direct impact is a positive effect on health independent of stress (Frese & Semmer, 1991; Pfaff, 1989).

Thus, resources have two different functions concerning health. Resources not only reduce the consequences of stress but also positively influence health by enhancing the development of expertise, self-confidence and general well-being (Ducki, 2000). These positive effects on employee well-being have been confirmed in several studies (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). The positive effects of resources are also emphasised by COR-theory (Hobfoll, 2001).

Two studies specifically focused on the buffer effect of job resources on the relationship between job demands and well-being, found evidence for the proposed interaction. Bakker et al. (2005) investigated 1,000 employees at an institute of higher education, and found that the combination of high demands and low job resources significantly added to the prediction of burnout. Work overload, emotional and physical demands, and work-home interference did not result in burnout if employees had autonomy in their job, received feedback and social support, or perceived the relationship with their supervisor as being of high-quality (Bakker & Demerouti, 2007).

A recent critical review argued that there is no single JD-R model and that it 'is heuristic in nature and represents a way of thinking about how job (and recently also personal) characteristics may influence employee health, well-being, and motivation' (Schaufeli & Taris, 2014, p.44). Although several studies have found links between job demands and resources, it is still not clear which role personal resources play, as no systematic studies have been performed. The results may also vary across different types and combinations of personal resources, job resources, job demands, and outcomes. One reason could be that the JD-R model lacks related well-defined and specific sets of concepts (Schaufeli & Taris, 2014).

2.1.5 Social support

As a resource, social support is imperative in many of the models discussed, although definitions of this have been criticised for being 'inconsistent, diverse, vague, and even contradictory' (Beehr, 1995, p. 183). Caplan (1979) describes the concept of a support system as 'an enduring pattern of continuous or intermittent ties that play a significant part in maintaining the psychological and physical integrity of the individual over time', inhabiting three types of support:

> The significant others help the individual mobilize his psychological resources and master his emotional burdens; they share his tasks; and they provide him with extra supplies of money, materials, tools, skills, and cognitive guidance to improve his handling of his situation (p. 6-7).

Social support can also be defined as a flow of communication between peers and leaders, involving emotional concern, caring, information, and instrumental help (Williams & House, 1985); or the interactions between individuals and their environment aiming to extend or obtain behavioural or emotional assistance (Hobfoll et al., 1990b; Vaux, 1988). A similar description defines the concept as the availability and quality of an employee's relationship with supervisors, co-workers, family and friends, and the amount of positive consideration and task assistance received (Cohen & Willis, 1985; Fusilier, Ganster, & Mayes, 1986; Kottke & Sharafinski, 1988).

Employees' experiences and abilities to manage their work are greatly influenced by their access to social support (Morgeson & Humphrey, 2006; Spreitzer et al., 2005). Social support is probably the most well-known situational variable (Bakker & Demerouti, 2007) to potentially buffer against job strain (Haines et al. 1991; Johnson & Hall, 1988). COR theory also views social support as one of the main factors in increasing resources to meet environmental demands and achieve personal goals (Hobfoll, 2002; Hobfoll et al., 1992; Vaux, 1992).

However, under certain conditions, social support has also been found to be harmful. Beehr et al. (2010) highlight 'specifically social interactions with potentially supportive people that lead the employees to focus their attention on the stress at the workplace, help from other people that makes employees feel a threat to their self concepts (i.e., makes them feel inadequate), and help from others that is unwanted' (p. 58). The construct of 'social support' can be broken down further: employees' social identity at work is often associated with being in control and competent in performing work (Halbesleben & Buckley, 2006). Consequently,

employees have a strong tendency not to reveal personal information or emotional reactions that might be interpreted as unprofessional by their peers (or leaders) (Maslach, 1982; Buunk & Schaufeli, 1993).

The outcomes of organisational support (both formal and informal) and a supportive climate are predictive of general satisfaction (Luthans et al., 2008), employee well-being (Lapierre & Allen, 2006; Thompson & Prottas, 2006) and general health indicators (Jain & Sinha 2005). This relationship was found to be mediated by employees' attitudes such as affective commitment (Panaccio & Vandenberghe, 2009) and perceived control (Thompson & Prottas, 2006). Although received social support in the form of supportive conversations addressing employee needs differs from the variable of perceived social support, the perception is that support will be offered if needed. The impact of social support on psychological well-being as a result of interaction effects (of control) or whether it reflects the main effects of support (Logan & Ganster, 2005) is not apparent. Both main effect and interactive models have been tested but with mixed results (Johnson & Hall, 1988; Landsbergis et al., 1992; Schaubroeck & Fink, 1998).

Although social support is one of the central factors in stress theories, it is not always sufficiently defined, and some forms seem to have negative effects. For the purpose of this study, social support is defined as methodological support (SFCBC) in addressing issues at work that affect subjective well-being. Another term that will be used in this thesis is 'support-seeking behaviour', meaning when employees engage in behaviour with their environment (peers and managers) to increase instrumental support that could help them resolve identified issues (relating to coaching goals).

2.1.6 Job crafting

Another concept that links directly to the practical side of what employees do to handle changes in their jobs is job crafting (Wrzesniewski and Dutton, 2001), a perspective that defines actions which employees take to shape and redefine their jobs:

1) Changing a job's task boundaries
2) What their job is cognitively
3) Changing the way they think about the relationships among job tasks, and what their job is relationally, by changing the interactions and relationships they have with others at work (p. 180).

Another perspective on job-crafting is derived from work design theory. Tims et al. (2012) defined job crafting in terms of Job Demand–Resource theory (Bakker & Demerouti, 2007),

as ‘the changes that employees may make to balance their job demands and job resources with their personal abilities and needs’ (p. 174).

Today, managers expect employees not only to adapt to larger change processes in organisations but also to introduce changes themselves (Grant & Parker, 2009). Theoretically, by the use of job crafting, employees are hypothesised to be better able to adapt existing jobs: which in turn could more closely align with individual needs, values and skillsets, and through that process, create a more engaging and meaningful experience at work (Berg et al. 2010; Wrzesniewski 2003; Wrzesniewski & Dutton, 2001). This theoretical job crafting model has been supported by a recent study of 253 working adults: job crafting predicted intrinsic need satisfaction, which in turn predicted employee well-being. The authors suggest that ‘job crafting may be an important underpinning upon which to base an employee well-being intervention’ (Slemp & Vella-Brodrick, 2014, p. 957).

One other implication is that training and coaching individuals in job crafting as a more bottom-up, proactive approach may increase the effectiveness of more traditional top-down work redesign efforts (Grant & Parker, 2009). Although the authors underline that ‘there may be value in helping job crafters to recognise that changes in broader organisational contexts may be necessary for crafting to succeed’ (p. 58). Additionally, Solberg and Wong (2016) found a negative relationship between perceived role overload and task crafting.

In summary, the similarity between job-crafting as defined by Wrzesniewski and Dutton (2001) and the goal of the SFCBC approach when applied at work could have implications for coaching research. CBC target both cognitive and behavioural aspects of how employees think and behave in relation to work factors (e.g. demand, support, role). The method and process, identifying issues at work that affect well-being and goal attainment, can also be described as support in employees’ job-crafting initiatives. Furthering the understanding of why/when job-crafting succeeds, and why/when it does not, can provide insights into why goal attainment might fail or be less successful in a work environment context. Hindrance factors for job crafting have been suggested to include lack of support or resources and role overload.

2.1.7 Theory and practice in occupational stress research

> Thirty years of systematic study have generated a substantial body of evidence on factors which contribute to stress – the ‘sources’ of stress. Much less is known, however, about how individuals deal with or manage the stress they experience,

> and about effective methods of coping with work- related stress. (O'Driscol & Cooper, 2013, p. 48).

Traditionally, research on work stress has focused mainly on theoretical aspects, creating a large gap between theory and practice (Kompier et al., 2000). Frese and Fray argue that one issue is that researchers themselves 'have shown hardly any interest in how people influence their work situation to make it more or less stressful, and they usually treat such influences as error variance' (2001, p. 138). On the other hand, much psychological stress research is based on the coping concept, which describes an active coping strategy (Lazarus & Folkman, 1984). Moreover, Gal and Lazarus (1975) have pointed out the positive function of activities for dealing with stressful encounters; this applies not only to threat-related activities but also to non-threat-related ones. Unfortunately, in work psychology, Lazarus' theory tends to be used more to emphasise the importance of cognitions (e.g., Perrewé & Zellars, 1999) in the stress process, rather than as a means of looking at the objective changes that people make in their work.

Krohne (2002) also suggests that a more constructive perspective in stress research would be to focus on 'what people are trying to do' practically in stressful situations, instead of only observing (Krohne, 2002). In a review of occupational stress models, Mark and Smith (2008) argues, that despite good predictive validity, 'many models have failed to include a role for the important effect of subjective perceptions and individual differences' (p. 137).

2.2 The Health and Safety perspective – Psychosocial work environment

In stress research, the environmental factors impacting employee well-being are often referred to as the psychosocial work environment (PWE). The term 'psychosocial' is a merger between psychology and sociology; the PWE is multifaceted and includes a wide range of different factors. The psychosocial work environment incorporates work-related psychological and social influences on health, through factors like time pressure, job control and level of autonomy, work demands and job security, and social relations between co-workers and supervisors (Cox & Griffiths, 2005). Psychosocial risks can be defined as 'the risk of detriment to a worker's psychological or physical well-being arising from the interaction between the design and management of work, within the organisational and social context' (Cox and Griffiths, 2005).

According to Theorell (2007), 'psychosocial factors could be defined as social conditions influencing individual psychological factors and vice versa. Another way of defining

psychosocial factors is to say that they represent the interplay between social (environmental) and psychological (individual) factors' (Theorell, 2007, p. 20). This term defines the area as clearly something other than the physical work environment (light, heat, sound), which is regularly measured and risk-assessed by leaders and health and safety representatives in an organisation. The psychosocial approach looks at individuals in the context of the combined influence that psychological factors and the surrounding social environment have on their physical and mental wellness, and their ability to function.

Cox (1993) identified ten types of stressful work characteristics or psychosocial hazards, divided into two groups: 'Content of work', and 'context of work' (Cox, 1993). Psychosocial factors include how work is carried out (deadlines, workload, and work methods) and the context in which work occurs: including relationships and interactions with managers and supervisors, colleagues and co-workers. The Institute of Medicine's report on stress and health (Elliott & Eisdorfer, 1982) suggested that organisations provide a significant portion of the total stress experienced by individuals, due to the amount of time spent on the job, and demands for performance and interaction with others. Stress at work can become an issue for the organisation as well as its employees; therefore, proper management and a well-functioning work organisation are the best forms of stress prevention (WHO, 2004). Similarly, psychosocial factors, such as supervisor-subordinate relationship quality, may also influence the effectiveness of applied stress interventions (Logan & Ganster, 2005).

The field of PWE inhabits and crosses over different areas of research and disciplines, including organisational psychology, health and safety, well-being and stress research. The psychosocial domains studied by occupational health researchers typically include psychological job demands, job control (decision latitude), social support, intrinsic and extrinsic rewards (Karasek & Theorell, 1990; Siegrist, 1996). These factors reflect the organisation of the work process, and are often used to define the 'psychosocial work environment'.

Studies have found that low levels of support and control at work lead to increased rates of sickness absence, as well as role-based factors such as the lack of power, role ambiguity and role conflict (Burke, 1988; Nelson & Burke, 2000). There is substantial literature linking job strain and cardiovascular disease (Karasek & Theorell, 1990; Schnall, 1994; Belkic, Landsbergis, Schnall & Baker, 2004), as well as the quality of the social environment in the workplace, including relationships with others (Cooper & Marshall, 1976; Noblet & Rodwell, 2008; Sparks & Cooper, 1999).

Another factor that impacts employee well-being is that of poor management and lack of leadership skills, associated with lowered employee well-being and a higher risk of stress-related health problems (Donaldson-Feilder et al. 2009). The leadership behaviours/skills that can be helpful to prevent stress include management of emotions, managing conflict, accessibility (being present) and management of workload/resources (Yarker et al. 2008; Lewis et al. 2011). The literature suggests that satisfaction with supervisors has a positive impact on job satisfaction, explaining up to 80.7% of the variance in some cases (Mardanov et al., 2008).

Van der Klink et al. (2001) performed a meta-analysis of 48 studies: which indicate that particular stress management programmes, with a cognitive-behavioural approach, are effective in reducing stress reactions, including burnout. Shaufeli and Bakker suggest that individual-based programmes should be supplemented by organisation-based programmes to be effective in the longer term (Shaufeli & Bakker, 2004). Furthermore, an in-depth analysis of 11 case studies (Kompier and Cooper, 1999) identified a combination of work-directed and worker-directed measures as one of the five critical success factors for the prevention of job stress in organisations.

The WHO defines Health and Safety as ‘occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards’ (2017, p.1). Only 5% to 10% of workers in developing countries and 20% to 50% of those in industrialised countries have access to adequate occupational health services. The promotion of workers’ health and safety in the workplace is also inadequate (WHO, 2017). One of the first models using the risk management paradigm to prevent and manage work-related stress was proposed in the UK in the early 1990s (Cox, 1993). The approach was based on a general summary of systematic problem-solving processes, commonly used in both applied psychology and management science (Hesselink & Jain, 2016).

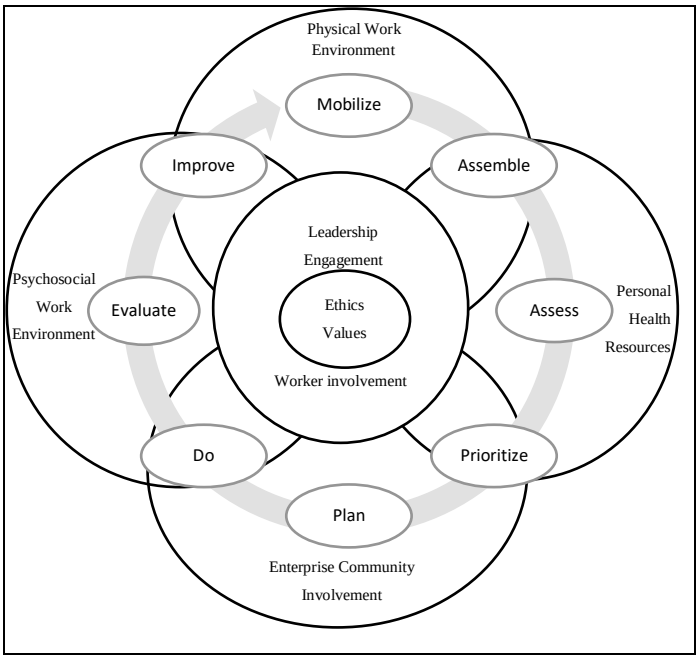
Work is generally beneficial to mental health and personal well-being, providing structure, purpose and a sense of identity with opportunities for employees to form relationships, develop and use skills, and increase feelings of self-worth (Kendall et al., 2000). The Psychosocial Risk Management Excellence Network (2017) concludes that ‘despite the positive influence of work, work-related psychosocial risks have been identified as one of the major contemporary challenges for occupational health and safety’ (PRIMA-EF Consortium, 2017, p.1). According to the Cooper- Marshall model (Cooper & Marshall, 1978), there are six primary sources of occupational stress:

1. Intrinsic factors of the job
2. Employee's role in the job
3. Relationship with others
4. Organisational structure
5. Career development
6. Climate and culture

2.2.1 The WHO's 'Five Keys to Healthy Workplaces'

The WHO (2007) concludes that 'workers represent half the world's population and are the major contributors to economic and social development. Their health is determined not only by workplace hazards but also by social and individual factors and access to health services' (p. 5). WHO (2017) defines the psychosocial work environment as involving the Physical Work Environment, Personal Health Resources, Enterprise and Community Involvement (see Figure 2.1). A healthy workplace is defined by WHO as one in which workers and managers collaborate in a continual improvement process to protect and promote the health, safety and well-being of all workers and the sustainability of the workplace, by considering the following: a) health, safety and well-being concerns in the psychosocial work environment, including organization of the work and workplace culture; b) health and safety concerns in the physical work environment; c) personal health resources in the workplace (support and encouragement of healthy lifestyles by the employer); d) ways of participating in the community to improve the health of workers, their families and members of the community (WHO, 2017).

Figure 2.1 Five Keys to Healthy Workplaces, World Health Organization.



Note: Reprinted from *Five Keys to Healthy Workplaces* (p.1) WHO, 2017. Copyright WHO, 2017. Reprinted with permission, 2017.

2.2.2 HSE Management Standards

In 2001, the Health and Safety Executive (HSE) issued new guidance: 'Tackling work-related stress: A manager's guide to improving and maintaining employee health and well-being'. The guidance encourages a proactive approach and highlights the major role which managers can play in reducing problems of stress in organisations and teams. Later, in 2007, HSE issued the Management Standards of Good Practice (amended in 2008) to help employers measure their performance on several key work factors.

The HSE's management standards (MS) approach provides a framework for tackling stress within an organisation by looking at the common work areas that cause stress, and setting targets or standards to meet (HSE, 2008). The MS method has been suggested as one of the most advanced in Europe (Iavicoli et al., 2009), In the UK, organisations have the duty to ensure that employees and anyone else who may be affected by the organisation's activities remain safe at all times: which includes the psychosocial aspects of the work environment. HSE advocates that managing health and safety can rarely be achieved by one-off interventions, and instead suggests a sustainable and systematic approach (HSE, 2008).

Work-related psychosocial risks concern aspects of the design and management of work and its social and organisational contexts which have the potential for causing psychological or

physical harm (European Foundation, 2007). A study of the HSE Management Standards approach (see Table 2.1), suggested it is useful when managing stress-related issues in an organisation (Mellor et al., 2013). 'The activities organisations carry out at each step of the implementation of a programme is useful information but of equal importance is how they do it' (Mellor et al., 2013, p.1). Furthermore, organisations tended to be more clear over how to handle the first two steps in the risk assessment method, while more uncertainties and larger variation were noticeable in Steps 3 and 4. Overall commitment from senior management and participation from employees was important; a key challenge identified was 'the translation from identified stress issues to focused interventions and their evaluation' (p. 1).

The HSE MS (Cousins et al., 2004, Edwards et al., 2008) addresses six major hazards or areas in an organisation that can cause stress for employees: demand, control, support, relationships, role, and change. In other words, they 'present a set of conditions that would, if met, reflect a high level of health, well-being and organisational performance' (Edwards & Webster, 2012, p. 1) (see Table 2.1).

Figure 2.2: The HSE's management standards (MS) approach: the six major hazards/work factors.

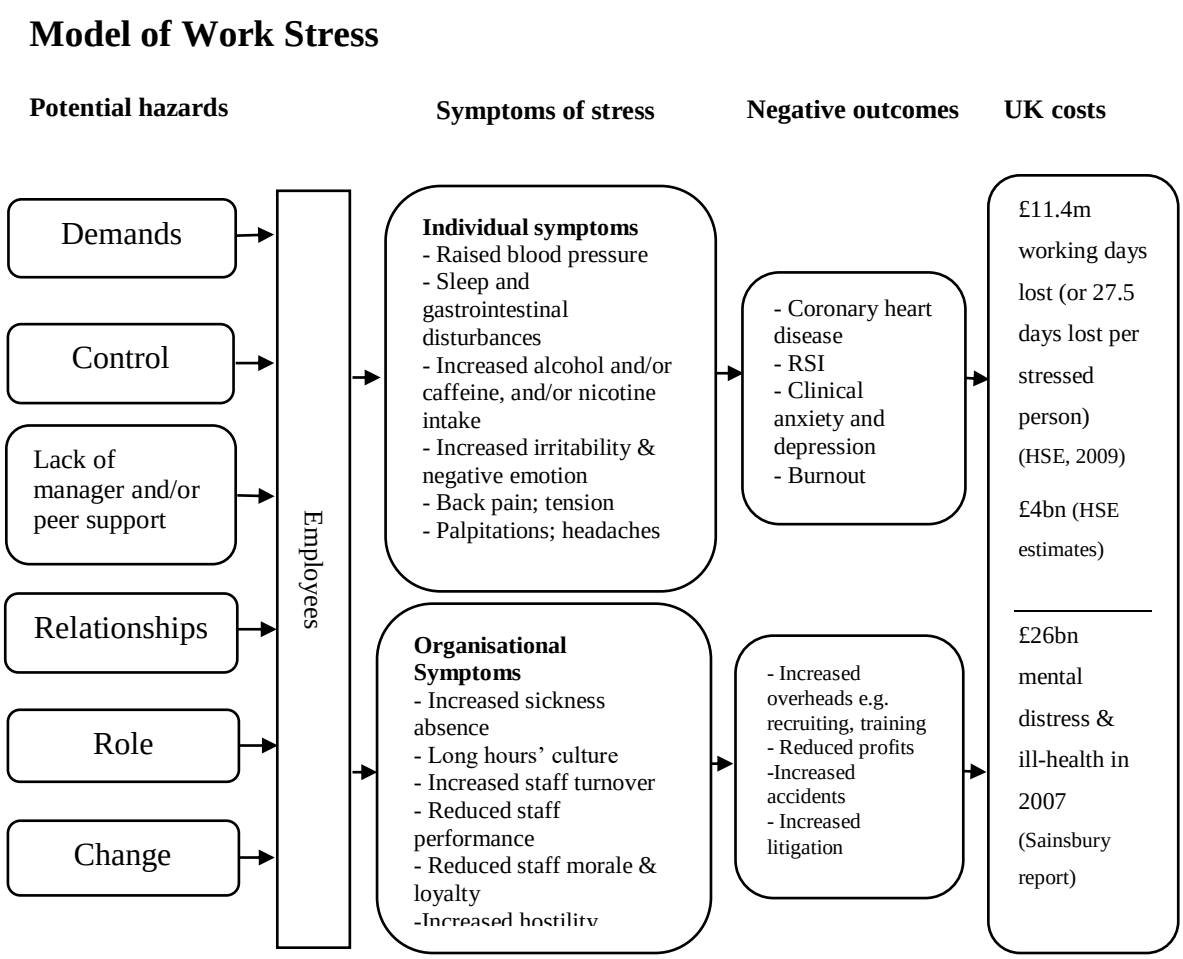
Work factor	Includes areas like:
Demands	Workload, work patterns and the work environment.
Control	How much say the person has in the way they do their work.
Support	Encouragement, sponsorship and resources provided by the organisation, line management and colleagues.
Relationships	Promotion of positive working to avoid conflict and dealing with unacceptable behaviour.
Role	Whether people understand their role within the organisation and whether the organisation ensures that they do not have conflicting roles
Change	How organisational change (large or small) is managed and communicated in the organisation.

Mackay at al. (2004) explains that for pragmatic reasons, HSE only provides recommendations based on the main effects of demands and control.

2.2.3 Model of work stress

Another model, 'the model of work stress' (Palmer et al., 2001; 2003; 2011), highlights the relationship between these main stress-related hazards and the organisational and individual symptoms (see Figure 2.2). The model provides a theoretical framework that could be used when explaining to employees the process of assessing work-related stress and how the HSE-MS Indicator Tool questionnaire measures the relevant stressors and identifies problem areas in the workplace by capturing their perceptions of their current work situation.

Figure 2.2: Model of Work Stress.



Note: Reprinted from *Revised model of organisational stress for use within stress prevention/management and wellbeing programmes – brief update* (p. 58), by Palmer, S., Cooper, C., & Thomas, K. (2003). Copyright (2011) by Stephen Palmer & Cary Cooper. Reprinted with permission, S. Palmer, 2017.

2.3 Interventions in organisations

To be able to differentiate among the varied interventions used in organisations, DeFrank and Cooper (1987) put forward a model proposing a classification which distinguishes

interventions as well as targets of stress management programmes on three levels: individual, individual-organisational and organisational. Other categorisations proposed in the literature have similar structures. Depending on the nature of an organisation, interventions can either be preventive, curative or reactive (Matteson, 1987). Other classifications include primary: stressor reduction; secondary: stress management; and tertiary: for example, different Employee Assistance Programmes (Murphy, 1988; Kompier & Kristensen, 2001). Cooper and Cartwright (2013) note that a majority of workplace activities are performed at secondary or tertiary levels. Tertiary level interventions fall into two main categories: health promotion activities and health screening (Cooper & Cartwright, 2013); the focus is often on changing the individual rather than the work situation.

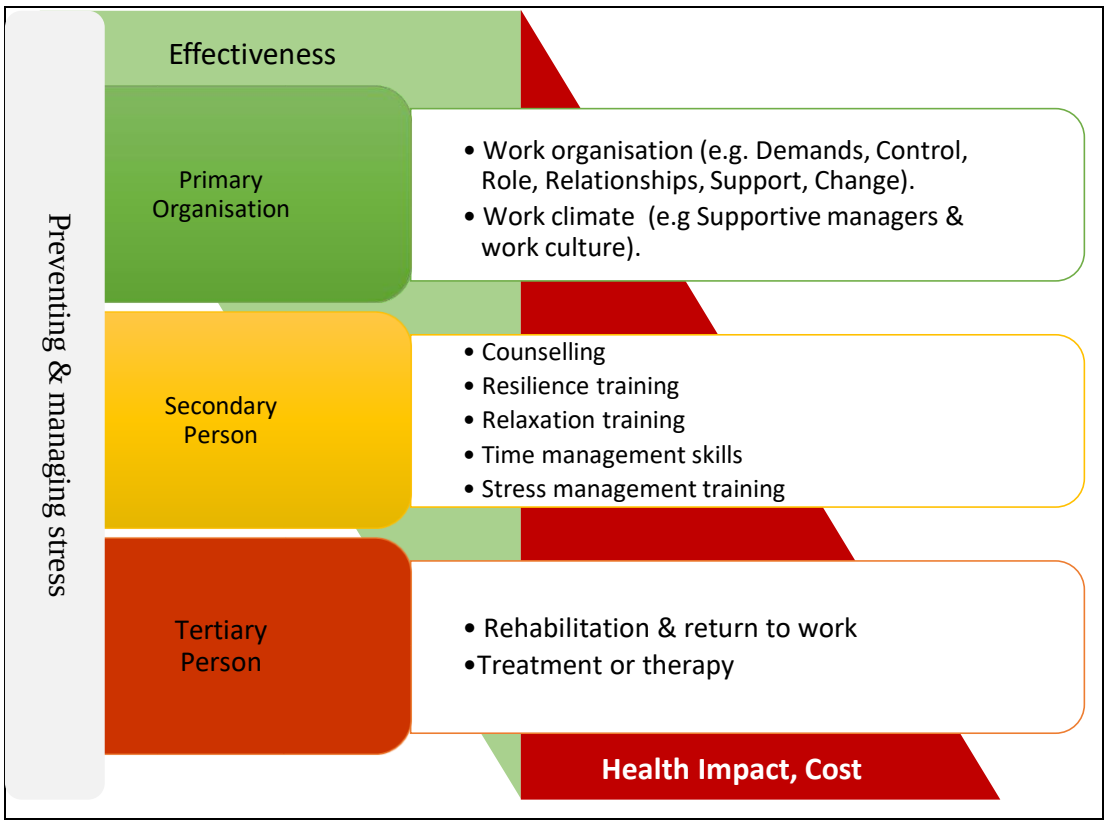
The interactionist approach (Cox, 1978; Cooper et al., 1988; Edwards & Cooper, 1990) describes stress as the consequences of the 'lack of fit' between the needs and demands of the individual and their environment. For that reason, the emphasis of most workplace intervention strategies is to improve the 'adaptability' of the individual to the environment. Often described as 'the band-aid' or inoculation approach, there is an implicit assumption that the organisation will not change but continue to be stressful. Instead, the individual has to develop and strengthen their resistance to stress. 'There appears to be markedly less organizational concern with adapting the environment to "fit" the individual' (Cooper and Cartwright, 2013, p. 34).

Primary level or 'organisational level' interventions (Burke, 1994) are concerned with taking action to modify or eliminate sources of psychosocial risks present at work, reducing the negative impact on work-related stress (Cooper et al., 1997). These actions aim to target the issues at source, dealing mainly with work design, organisation of work, and management perceived to be a problem (Randall & Nielsen, 2010). Secondary level interventions involve steps to improve the perception and management of psychosocial risks for groups that may be at risk. This aims at detection and management of experienced stress, and the enhancement of workers' ability to more effectively manage stressful conditions by increasing their awareness, knowledge, skills and coping resources (Sutherland & Cooper, 2000). These strategies are usually directed towards at risk groups (Tetrick & Quick, 2003). In practical terms, the focus is on education and training. Training employees will increase awareness and knowledge about work-related stress, time management and handling conflicts, to name a few (Jain et al., 2016).

Tertiary level interventions are also known as reactive strategies (Kompier et al., 2001). These are more focused on reducing the effects of exposure to psychosocial hazards, through the management and treatment of occupational illness (Jain et al., 2016). Other authors have come to similar conclusions as Cooper and Cartwright (2013): that tertiary level interventions seem to be most frequently used; followed by secondary level interventions; with primary level interventions least used (Giga et al., 2003; Hurrell et al., 1996).

Considering all the various methods, levels and interventions that can be applied in an organisation, Deakin University (2017)'s illustration or model can be useful as a clarification (see Figure 2.3). This model gives a practical visual overview of the important parts of stress managing or health-promoting activities in organisations. The Deakin model is a synthesis building on previous work (Centre for Applied Research in Mental Health and Addiction, 2017; Health and Safety Executive, 2007; La Montagne et al., 2007; National Mental Health Commission, 2017).

Figure 2.3: Preventing and Managing Stress



Note: Reprinted from Deakin University website, Managers role in workplace stress risk management. Retrieved October 25, 2017. from: http://www.deakin.edu.au/students/health-and-wellbeing/occupational-health-and-safety/health-and-wellbeing/work-related-stress/managers-role-in-the-risk-management-of-workplace-stress. Copyright (2017) Deakin University. Reprinted with permission. The figure represents a combination of different sources (see references in text: 2.4.3 Interventions in organisations).

2.3.1 Summary stress theories, models and interventions in organisations

There seems to be a gap between theory and practice in stress research on how employees influence or what they do to change their work situation. Much of the psychosocial stress research also centres around the coping concept; in other words, how to cope with or become better at coping with stress - also defined as secondary level interventions like stress management, resilience training and different types of education. Primary level interventions are seen as organisational and usually deployed as risk assessments at group level, or changing work design at a higher level.

Studies and theories describing how stress occurs and the effects of different third level interventions, such as rehabilitation (e.g. CBT/Counselling) are more dominantly reported in the clinical research field. Contemporary stress theories have identified a number of work factors, such as demands, support and resources, that can be beneficial in sustaining or increasing psychological well-being and health at work. Research in organisations is complex and involves several interacting factors which make it more challenging to isolate direct or interactional effects. Nevertheless, salutogenic stress theories like COR and JD-R theory show that resources play an essential part in how employees balance demands in the work environment. However, these theories still lack clear evidence on how resources interact or which resources that specifically lead to increased or sustained well-being at work.

In recent years, research into what specific role resources play has turned towards not only external resources (e.g. support or feedback), but to internal factors (individual differences) that could impact on how employees utilise existing or needed external resources. Halbesleben et al. (2014), in a review of COR theory, attempt to clarify the nature of resources by defining them in terms of supporting goal achievement; which in turn, could directly link SFCBC as a resource that could support goal attainment. This perspective to resources will be adopted in this study, together with the definition of stress as the ‘experience of anticipating or encountering adversity in one's goal-related efforts’ (Carver & Connor-Smith, 2010, p. 683).

Similarly, studies focusing on individual primary interventions (e.g. proactive methods focused on sustaining or increasing subjective well-being) in organisations and among non-clinical individual employees are less frequent. Individual effects or subjective perceptions of issues that can affect well-being or stress in organisations are also less often addressed. What are employees actually doing to sustain their psychological/subjective well-being? What kind of resources are vital to balance demands and resources at work? The Job

Demand Resource theory (Bakker et al., 2003; Demerouti et al., 2001; Demerouti et al., 2001) is a broader organisational theory, in the sense that it can include different types of resources, rather than models with more set factors like the DC (Karasek, 1979) or DC-S (Johnson & Hall, 1988; Johnson et al., 1989).

The HSE's MS Model (Cousins et al., 2004; Edwards et al., 2008) and the Model of Work Stress (Palmer et al., 2003) is used in this study to measure and analyse specific work factors, like demand and role, and their potential relationship with intervention outcomes. They can also theoretically explain where coaching interventions could potentially fit as a first level intervention in non-clinical populations at work.

2.4 Knowledge work jobs

Since a large proportion of the research group were civil engineers (76%), a literature search (PsychINFO) was performed ('engineers', 'stress' and 'well-being') to gather further information regarding this specific group. Engineering is a highly collaborative profession, where teams usually work together to develop, design, implement, and troubleshoot projects and interventions. They differ from other professional groups to some degree (Hall et al., 2015). One study was explicitly identified involving Indian software engineers; another included engineers amongst other professions.

Searches were also performed outside PsychINFO, resulting in two additional studies focusing specifically on engineers in the construction industry. One of the doctoral dissertations explored job burnout among software developers (N=372); the results indicated that the most critical resource buffer to mediate mental ill health (burnout) was social support (Singh, 2012). The second doctoral thesis addressed work-related well-being as concerns engineers (construction industry) in South Africa (N=369). The most important work stressors identified in this study were work demands and work overload (Malan, 2004).

One other study concerned civil engineers in the construction industry in Australia (Lingard, 2003). The researcher followed a group of engineers over 12 months, with a response rate of 36% (92% male). The author suggests that 'engineers probably have a relatively low level of control over work-related sources of stress' (p.79). Furthermore, job characteristics appear to be more important predictors of burnout than demographic characteristics or personality traits. Job-related variables found to be positively correlated with emotional exhaustion were work overload and role conflict (Lingard, 2003), suggesting that preventive strategies should focus on re-designing engineers' jobs by

achieving a better job-person fit in relation to workload, work hours, reward, fairness, and job role conflict.

Sørensen and Holeman (2014) examined 'knowledge work jobs' and employee well-being, which included engineers. Knowledge work jobs are defined as 'those in which the primary task is the acquisition, creation, packaging or application of knowledge' (Davenport et al., 1996, p.54). These jobs often involve a high degree of both complexity and ambiguity, with no simple solution (Alvesson, 1993). Furthermore, they are usually combined with a high level of cognitive demands, intellectual challenge, a high level of task discretion and variety (DeFillippi et al., 2005; Drucker, 1993). Sørensen and Holeman (2014) point out that:

> Knowledge workers' key concerns about their job characteristics relate to task ambiguity and uncertainty, as well as task complexity and interdependency. In particular, employees expressed concern about: the difficulties of crafting solutions to ill-defined problems; knowing when a solution was acceptable; the complexity associated with administering, planning and coordinating several projects; and working on tasks that require uninterrupted problem-solving time but which also require knowledge-sharing and coordination with others (p. 80).

Interventions focusing on reducing task ambiguity and uncertainty by improving feedback from managers (frequency and quality) lower uncertainty on task solutions and progress (Sørensen & Holeman, 2014).

2.1 Well-being

Research into well-being has been growing in recent decades (Diener et al., 1999; Kahneman, 1999; Seligman, 2011). A PsychINFO search using the terms 'well-being' / 'wellbeing' brought forth 62,027 citations for the past 10 years. The concept of well-being, like stress theories and models, has a long history of academic theorisation and debate (Newton et al., 2007). Terms like quality of life, welfare, life satisfaction, happiness, and subjective well-being are interchangeably used in connection to the concept of well-being (Newton et al., 2007). Dodge et al. (2012) argues that the question of 'how wellbeing should be defined (or spelt) still remains largely unresolved' (p. 1): which in turn 'has given rise to blurred and overly broad definitions of wellbeing' (Forgeard et al., 2011, p. 81).

Well-being is also a concept common to anthropology, economics, psychology, sociology, and other social sciences (Smith & Clay, 2010). In the WHO Declaration of 1948 (Constitution of the World Health Organisation), health was defined as a 'state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WHO, 2014a, p.1). Later, the WHO added 'mental wellbeing' as a separate but connected term, defining this as 'a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community' (WHO, 2014b). The Department for Environment and Rural Affairs (DEFRA, 2010) define well-being as 'a positive physical, social and mental state; it is not just the absence of pain, discomfort, and incapacity'.

> It requires that basic needs are met, that individuals have a sense of purpose, that they feel able to achieve important personal goals and participate in society. It is enhanced by conditions that include supportive personal relationships, strong and inclusive communities, good health, financial and personal security, rewarding employment, and a healthy and attractive environment (DEFRA, 2010).

In the year 2000, Diener proposed the creation of National Accounts of Well-Being to complement existing economic and social indicators reflecting the quality of life in nations (Diener, 2000). This initiative later resulted in different national and international accounts of well-being, which today serve as comparisons across regions and nations to underpin different actions at a national political level. For example, Scandinavian countries are the 'top performers' on overall well-being, while Central and Eastern European countries have the lowest well-being. Results from the DEFRA survey (DEFRA, 2010), 'Life Satisfaction and other measurements of well-being, 2007-2011', show that 79% of respondents in the UK reported feeling happy or contented every day or most days over the previous two weeks.

2.1.1 Definition of well-being

The well-being concept is theoretically diverse and includes a large number of definitions or concepts. Current research has been derived from two general perspectives. The hedonic approach (Kahneman, 1999) defines well-being in terms of pleasure attainment and pain avoidance; the eudaimonic approach focuses on meaning and self-realisation, and defines well-being in terms of the degree to which a person is fully functioning (Warr, 2007; Waterman, 1993). These two perspectives are grounded in distinct views of

human nature and what constitutes a good society (Ryan & Deci, 2001). For the purpose of this study, it was necessary to narrow the field of investigation into well-being: the focal point of the literature review will be on the term 'subjective well-being' (SWB) and theoretical models in such regard.

2.1.1.1 Subjective well-being

Parfitt (1984) divides well-being into three general accounts: mental-state, objective-list, and desire-fulfilment accounts. Most psychologists focus on the mental state of well-being or subjective well-being as a more general term for how individuals think and feel about their lives (Diener et al., 1999). Measures of SWB are more frequently utilised in academia (Dolan & White, 2007: Dolan et al. 2008), but also amongst policymakers interested in monitoring progress and evaluating interventions (Eurofound, 2016; OECD, 2013). SWB can be defined as 'a person's cognitive and affective evaluations of his or her life' (Diener et al., 2002, p. 63). The cognitive element refers to what an individual think about their life satisfaction in a) global terms (life as a whole) and b) domain terms (in specific areas of life such as work, relationships, etc).

The affective element refers to emotions, moods and feelings. Affect is considered positive when emotions, moods and feelings experienced are pleasant; and deemed negative when emotions, moods and feelings experienced are unpleasant. A person with a high level of satisfaction with their life, and who experiences a greater positive affect and little or less negative affect, would be classified as having a high level of SWB (Diener et al., 2002). The SWB scales have been shown to be stable under unchanging conditions, but sensitive to changing circumstances in someone's life.

Research findings show clear evidence for both the validity and reliability of SWB scores: they have identical scores when administered in the same conditions (Diener et al. 2013; Tay et al. 2014). The stability across time and situations also suggests that stable psychological processes are involved. Stability coefficients over a short and longer period are high (Pavot & Diener, 1993; Diener et al. 1985), as well as in terms of different situations, such as in work versus leisure (Diener et al., 2013).

Another broader definition of SWB (OECD, 2013) describes it as inhabiting 'all of the various evaluations, positive and negative, that people make of their lives, and the affective reactions of people to their experiences' (OECD, 2013, p.10). However, it been argued that the three components of SWB - life satisfaction, positive affect and negative affect - are independent factors that should be measured and studied separately (Andrews & Withey, 1976, Lucas et

al., 1996). Empirical evidence points to a positive causal effect of SWB on individuals' physical health (Diener & Chan, 2011); it has also been suggested to have an indirect effect, as individuals with higher SWB are more likely to engage in health-promoting behaviours and practices (Grant et al, 2009). Higher SWB has also been suggested to raise an individual's levels of creativity and problem-solving, encourage pro-social behaviour and increase engagement levels at work (Lyubomirsky et al., 2005).

Global measurements of SWB are frequently used to assess large populations in nations or worldwide. The questions are similar: for example, The World Value Survey is administered to 81 countries, and performed by the World Values Survey Association, a global network of social scientists studying changing values and their impact on social and political life. The question asked in the survey is: 'All things considered, how satisfied are you with your life as a whole these days?'. The European Quality of Life Survey (Eurofound, 2016) asks EU citizens: 'How satisfied are you with your life these days?'

There is a longstanding debate and critique among researchers concerning the reliability of this global measurement of SWB. Reliability of SWB scales refers to if a person who scores a specific value on one day will score the same value on another, as long as no significant changes in their individual life circumstances have occurred (Dolan & White, 2007). The critique concerns the neglect of effects like context and mood; Schwarz and Strack (1999) concluded that measures of SWB generally 'do not reflect a stable inner state of well-being. Rather they are judgements that individuals form on the spot… resulting in pronounced context effects' (p. 61). Khaneman and Krueger (2006) argue that measures 'of temperament and personality typically account for much more of the variance of reported life satisfaction than do life circumstances. For example, measures of psychological depression… are highly correlated with life satisfaction' (p. 8).

Differences between the mode on how SWB data is collected can also influence outcome data and have repeatedly been documented in research (Schwarz et al. 1991; Sakshaug et al. 2010). Dolan and Kavetsos (2016) reported that when comparing face-to-face to phone interviews, individuals consistently report higher SWB over the latter. This result contradicts the more general understanding of the 'social desirability bias where respondents present themselves in a more positive light (e.g. healthier) the "closer" to the interviewer they are' (p. 1288). The authors hypothesise that the results could be explained by the individual not investing as much attention in phone

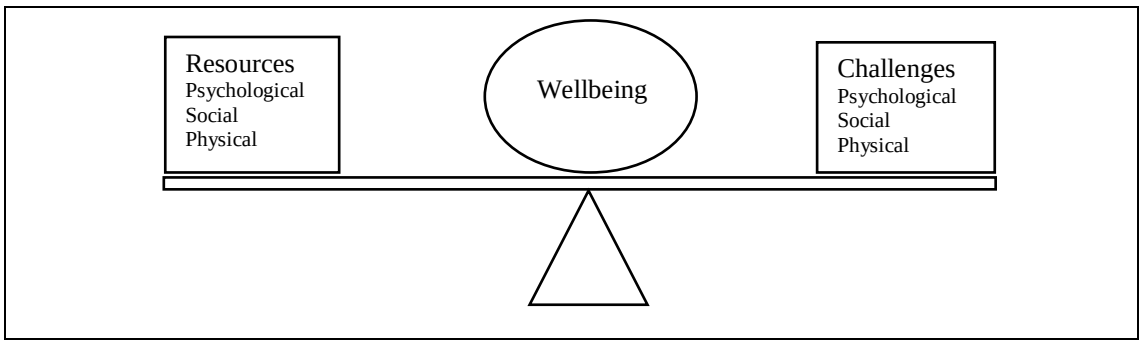
interviews as in F2F surveys, leading to inaccurate responses (Holbrook et al. 2003). These findings could also have implications for SWB data collected in online surveys.

2.1.1.2 Sustainable well-being

Another more recent concept in the colourful palette of well-being descriptions and definitions is sustainable well-being. The word 'sustainability' was formally introduced in 1987, when a UN initiative (WCED, 1987) defined it as involving development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (p.24). The concept represents a crossover from other research domains predominantly concerning environmental sustainability, such as Agriculture, Fisheries and Forestry (Kajikawa, et al., 2010). Lélé and Norgaard (1996) state that 'sustainability lexically refers to the ability to maintain something undiminished over some time period' (p. 355). Sustainability does not focus on one activity in isolation, but represents an ongoing process accounting for how various activities (systems) influence each other. The aims involve many perspectives, which are all inclusive. Importantly, this relates to a critique raised against well-being and positive psychology research: that one person's happiness can be the source of someone else's unhappiness (Lazarus, 2003). In this respect, a sustainability perspective can increase the all-inclusiveness of well-being aims.

Another definition of well-being views it 'as the balance point between an individual's resource pool, and the challenges faced' (Dodge et al., 2012, p. 230) (see Figure 2.4).

Figure 2.4: Definition of Well-being.



Note: Reprinted from The Challenge of Defining Wellbeing. *International Journal of Wellbeing* (p.230), by Dodge, R., Daly, A., Huyton, J., & Sanders, L. (2012).

Dodge et al. (2012)'s definition connects to the set-point theory of well-being, a construct that views low subjective well-being more as a result of homeostatic defeat; a loss of balance. The theory of SWB homeostasis postulates that SWB operates under homeostatic control, and was first proposed after the discovery that there is very little variation in average well-being scores across populations (Cummins, 1995; 2010). Though levels of well-being may temporarily rise or fall, internal mechanisms work to return the well-being level to its set-point (Cummins,

2010; Cummins et al., 2014). In the case of an overwhelming negative life event, these mechanisms may fail. This is deemed homeostatic defeat where it may take longer for SWB levels to return to its set-point (Cummins, 2010). When resources are directed to groups experiencing low SWB, it is suggested that their SWB will rise; and if so, so will elevated levels of SWB, as such individuals are returned to settle into their homeostatically defended set-point range. Kloep, Hendry and Saunders (2009) describe the relationship between challenges and resources as follows: "Each time an individual meets a challenge, the system of challenges and resources comes into a state of imbalance, as the individual is forced to adapt his or her resources to meet this particular challenge" (p. 337). This definition has similarities to stress theories like the JD-R model, where resources at work are seen as important to balance work demands and secure an individual's well-being in organisations.

2.1.1.3 Psychological well-being

Ryff (1989) criticised definitions of well-being which have a dominant focus on the affective pleasure component and the theoretical foundation of what characterises a healthy and flourishing life within SWB. From the literature, Ryff derived six dimensions reflecting psychological well-being (PWB): (1) self-acceptance; (2) positive relations with others; (3) autonomy; (4) environmental master; (5) purpose in life; and (6) personal growth. These dimensions constitute the Scales of Psychological Well-Being (SPWB; Ryff & Keyes, 1995). Psychological well-being (PWB) is related to both positive work and personal life outcomes (Avey et al., 2010). Judge et al. (2001) found that the relationship between job satisfaction and job performance was moderated by other variables, one of the most consistent of which was psychological well-being (Wright et al., 2007).

Parallel to the increased attention on well-being from researchers and nations alike, organisations have also increased well-being promotion activities. DeFrank and Cooper (2013) conclude that there has been 'an explosion of interest in the last few years in health promotion or "wellness" programs', including activities like: exercise, weight control, smoking cessation, and stress management. Workplaces use these 'band-aid' programmes to a large extent (DeFrank & Copper, 2013, p. 1). The authors suggest that attention should instead be paid to the existence of job stress to develop awareness, and broadening of the perspective of stress management in the workplace (DeFrank & Copper, 2013).

2.1.2 Summary of well-being

Well-being is a complicated, versatile concept that concerns a number of different variables and theories. Researchers are not in agreement on how to define the concept,

or what constitutes well-being. Although the review highlights the wealth of information on the causes, components and consequents of SWB. SWB set points are remarkably stable over time, regardless of day-to-day activities and major life events. These set points are primarily determined by an individual's personality, positive and negative affect and core affect are thought to be stabilised via the process of adaptation and/or homeostasis. Although SWB is most commonly viewed as a global evaluation of overall life satisfaction, it can also be conceptualised as an aggregate of satisfaction in various life domains (e.g. work, relationships, health). Stability coefficients over a short and longer period are high (Pavot & Diener 1993; Diener et al. 1985), as well as in terms of different situations, such as in work versus leisure (Diener et al., 2013). A logical deduction from this is that SWB findings should extend to more specific areas of one's life, such as one's work life. However, it is necessary to clearly define a more exact meaning to the term, to explain outcomes in this research. For this reason, the term subjective well-being is defined as 'a person's cognitive and affective evaluations of his or her life'; and stable well-being is defined according to Dodge et al. (2012): namely, when an individual has the psychological, social and physical resources needed to meet a particular psychological, social and physical challenge. Consequently, when individuals have more challenges than resources, they also experience a reduced sense of well-being.

Psychological well-being is sometimes referred to in organisational research as describing stress reactions or lack thereof among individuals; but not according to Ryff (1989). In this study, psychological well-being will be used as a term describing the level of symptoms of depression, anxiety and stress according to the DASS-21 questionnaire (see Chapter 7), more in line with organisational research definitions of the concept.

2.2 Goal setting theory

Well-being and goal setting have been found to affect each other. Until the turn of the century, goal setting-theory (Locke & Latham, 1990, 2002) had already generated more than 1,000 studies (Mitchell & Daniels, 2003). The theory has high internal and external validity (Locke & Latham, 2006). Support for goal-setting effects has been found in more than 88 different tasks, involving more than 40,000 male and female participants in Asia, Australia, Europe, and North America (Locke & Latham, 1990). Goal setting affects performance by creating a structure for focus and attention, where the goal attainment process can affect the sustainability of the process (Locke & Latham, 2002).

Furthermore, when keeping goal difficulty constant, a goal increases performance regardless of whether it is assigned, self-set, or set participatively (Latham et al.; 1988; Latham & Frayne, 1989; Latham et al., 1982). Goals also affect performance, whether they are short or more long term (Latham & Baldes, 1975; Howard & Bray, 1988).

Latham and Locke (2007) conclude that two specific factors affect the goals chosen by an individual: 'The importance of the goal to the individual and self-efficacy, namely, self-confidence that the goal for a specific task is, indeed, attainable' (p. 291). Mediator effects of goal setting are choice, effort, persistence, and strategy. The goals themselves are moderated further by 'ability, goal commitment, feedback in relation to goal pursuit, the complexity of the task for an individual or group, and situational factors (e.g., presence of needed resources)' (Latham & Locke, 2007, p. 291).

Goal setting has, apart from performance, been found to affect subjective well-being. A meta-analysis revealed that goal attainment is associated with an increase in positive affect and decreases in negative affect (Koestner et al., 2002). Sonnentag (2002) found similar results: goal setting, feedback and self-efficacy play a vital part in a person's subjective well-being. Research also confirms that subjective well-being positively correlates to goal attainment (Brunstein, 1993; Elliot et al., 1997; Sheldon & Kasser, 1998; Sheldon & Elliot, 1999; Sheldon et al., 2002).

Latham and Brown (2006) found that setting learning goals increased satisfaction more than setting performance goals. A 'learning goal' can be defined as one which, in contrast to a performance goal, changes someone's focus when the strategy or strategies to attain the goal are not known. Therefore, knowledge acquisition before a performance outcome goal is set can be critically important (Locke & Latham, 2006). Challenging performance goals have an unfavourable effect on a person's effectiveness in the early stages of learning (Kanfer & Ackerman, 1989; Seijts & Latham, 2005). 'A learning goal draws attention away from the end result. The focus instead is on the discovery of effective strategies or processes to attain desired results' (Seijts & Latham, 2005, p.1). Challenging learning goals, in contrast to setting performance goals, are 'far more effective for discovering radical, out-of-the-box ideas or action plans that will enable organizations to regain a competitive edge' (p.1). For future research, Locke and Latham (2006), suggest, among other areas, studies of 'the relation between goals and cognition (which, by implication, entails all of cognitive psychology)' (p. 268).

Stress can generally be considered as the experience of anticipating or encountering adversity amid someone's goal-related efforts (Carver & Connor-Smith, 2010). The process of developing goals is an important aspect of stress, time and life management (Palmer & Cooper, 2013). However, goal setting at work deserves further discussion; 'goal selection for workplace coaching is not a straightforward process' (Grant, 2009, p. 404). It is essential that goals align with the organisation's imperatives, although of similar importance is the coachee's prospect of choice in defining the goals (Grant, 2009). Pre-determined goals set by an organisation may be alienating, which in turn can create resentment (Twiname et al., 2006). Commitment to self-set goals tends to be higher than to those set by other people (Locke, 1996).

2.2.1 Goal attainment

Goal attainment is an essential part of coaching and defined in the literature as the degree to which goals are successfully achieved or realised by coachees (Spence, 2007). They enable capture of the level of goal attainment after, for example, a coaching goal has been achieved, Goal Attainment Scaling (GAS) is a valid, reliable quantitative scaling technique (Kiresuk & Sherman, 1968), and has been effectively applied when evaluating progress of programme-specific goals (MacKay & Lundie, 1998). Spence (2007) argues that by using one methodology for measuring goal attainment and coaching effectiveness, central to coaching research, GAS could offer a more consistent approach and increase the quality of the research (Spence, 2007). The GAS evaluation approach, however, has limitations. The transformation of:

> GAS scores into standard scores (for the purpose of quantitative evaluation) has been strongly criticized. In response to these criticisms, MacKay and Lundie (1998) have proposed that goal-scale ratings may be better treated as ordinal data (thereby making fewer assumptions about the data) and presented as frequency counts on dimensions such as post-intervention attainment levels, goal categories, goal weightings (Spence, 2007, p.161).

The statistical analyses are recommended to be performed with a corresponding non-parametric test (Spence, 2007). Practically speaking, available resources, including time, influence the number of goals set for a coachee within a certain intervention period. Despite Kiresuk et al. (1994) recommending that for psychometric reasons, at least three goals per client are set, one or two goals can be more practically suitable (King et al., 1998; King et al., 1999; Palisano et al., 1992; Palisano, 1993; Stephens &

Haley, 1991). Burgee (1995) concludes that the counselling literature has found that collaborative goal setting between counsellors and clients using GAS results in higher client satisfaction, motivation and positive therapy outcomes, in comparison to clients in a non-GAS condition (Barbrack & Maher, 1984; Kiresuk et al., 1994; La Ferrier & Calsyn, 1978; Maher, 1981; Smith, 1976). Also, realistic goal setting was linked to the successful planning and performing of activities which participants had avoided in the past (Barlow et al., 2009).

The conclusions drawn from Burgee (1995)'s investigation into GAS were that it increased the client's motivation: they became more aware of their responsibilities in counselling (Smith, 1976) and experienced the opportunity to determine its direction (Le Ferrier & Calsyn, 1978). The self-management literature suggests that goal setting provides an impetus to make and maintain health-related behaviour change, and that success in achieving goals increases self-efficacy (Scobbie et al., 2009): which in turn provides individuals with the confidence to set and pursue more ambitious goals (Scobbie et al., 2009). However, Taris and Kompier (2004) argue that under time pressure and quantitative overload, workers have little opportunity to set new goals and develop new action plans, and instead revert to prior automatized skills, which results in lower levels of learning-related behaviour.

2.3 Conclusion

To summarise: coaching psychology is still a relatively young, developing field within the psychology domain. The coaching field in itself is also diverse, stretching over many different subject areas, such as executive, life and sports coaching, and can be performed individually or in a team setting, at work or privately. This review has focused on examining stress theories or models, and well-being concepts which could further explain possible interactional effects between work environmental factors and coaching interventions.

For this study, the Job Demand Resource model was chosen as it offered a broader definition of resources, was fairly well researched and focused more on a work environment specific context. This model could help examine the role that coaching interventions could play in an organisational system. More specifically, it will be argued that coaching by definition can act as an individual resource (e.g. support function), mediating work demands which potentially affect stress reactions and subjective well-being. Although there are numerous definitions of stress (Lazarus & Folkman, 1984), it

can also be defined as the ‘experience of anticipating or encountering adversity in one's goal-related efforts’ (Carver & Connor-Smith, 2010, p. 683). Consequently, when an employee encounters problems, not reaching these goals (or work goals) could increase stress and reduce well-being. Interfering factors, e.g. factors impacting on subjective well-being, could theoretically effect an individual’s homeostatic balance. These include lack of personal or organisational resources, effects on cognitive and behavioural aspects due to stress, or lack of knowledge or awareness in problem-solving abilities.

When looking at the effects of stress, researchers have mostly observed interactions between different organisational or work factors in order to form theories and models on how these affect individuals and lead to stress reactions among employees. Yet they have not examined to the same extent, what practical methods or actions can help mitigate effects of stress or increase well-being; in other words, what employees individually can do to improve their specific work situation inherent to a specific profession.

A coaching intervention such as solution-focused cognitive behavioural coaching also inhabits several different areas which may influence outcomes in research: goal setting and attainment, cognitive behavioural elements, solution-focused techniques, rating scales, and a coaching structure. In turn, these factors interact with each other, making it difficult to determine which factors contribute to potential outcomes. In Chapter Three, the coaching method utilised in this specific research and encompassing factors are examined in more detail.

Chapter 3: PRACTICE and the solution focused cognitive behavioural approach

> *People are aspiring and proactive organisms, not just reactive ones. Their capacity to exercise forethought enables them to wield adoptive control anticipatorily rather than being simply reactive to the effects of their efforts. They are motivated and guided by foresight of goals, not just by hindsight of shortfalls* (Bandura & Locke, 2003, p. 91)

Introduction

The focus of this chapter is to describe the PRACTICE framework (PF), theoretical background, the rationale for choosing this method over other potentially useful approaches, and behavioural change techniques and actions that could initiate change in behaviour and outcome measures in research. Primarily, coaching clients are not seeking assistance with clinical conditions such as depression or anxiety. Instead, they tend to focus on perceived problems in reaching professional goals, stress-induced cognitive behavioural effects, emotional and behavioural issues interfering with performance, or everyday life.

In a 2006-7 survey, investigating coaching psychologists' practice, 28 different psychological models and approaches were identified. The two most frequently reported methods/approaches were the solution-focused approach (SF) (67.9%), and cognitive behavioural coaching (CBC), (60.7%) (Palmer & Whybrow, 2007). Historically, CBC approaches are based on or developed through cognitive behavioural and problem-solving therapies. The method integrates several 'theoretical concepts and strategies applied in cognitive behaviour, rational emotive behaviour, problem and solution focused approaches, goal setting theory and social cognitive theory' (Palmer & Syzymanska, 2007, p. 86). CBC is described as "time-limited, goal-directed and focused on the here and now" (Neenan & Palmer, 2001, p. 1). Its primary goal "is for the client to become her own coach to tackle present and future challenges" (Neenan, 2008, p. 3).

One of the underlying assumptions in CBC is that feelings or behaviours are primarily determined by beliefs and appraisal of the particular situation or problem. Sequentially,

this process influences emotions and behaviour in how individuals respond to an event, which impacts upon perceived stress and performance (Palmer and Szymanska, 2007). Neenan (2008: 3) points out that "what often blocks the way are the client's self-limiting/defeating thoughts and beliefs (e.g. 'I can't afford to make any mistakes'), counterproductive behaviours (e.g. indecisiveness) and troublesome emotions (e.g. prolonged anxiety)". CBC can affect the client's identification and examination of thinking processes and initiate change in thought patterns and beliefs, which in turn, can develop productive behaviours and increase skill levels in emotional management (Neenan, 2008).

Several different CBC models have developed, especially during the last 15 years. The BASIC ID model (Lazarus, 1981; Palmer, 2008a; Palmer & Burton, 1996) addresses: Behaviour; Affect; Sensation; Imagery; Cognition; Interpersonal; Drugs; and Biology. The SPACE model (Edgerton & Palmer, 2005) targets five areas: Social context, Physiology, Action, Cognition, and Emotions. The ABCDE(F) coaching model (Ellis, 1962; Ellis et al., 1998; Palmer, 2002), derived from Ellis (1962)'s ABC model of emotion, includes the Activating (A) event, Beliefs about A, Consequences, Disputation or modifications of unhelpful beliefs, the Effective new approach in dealing with the activating event, and Future focus. Palmer (2002)'s model represents the construction of future goals based on learning from the ABCDE steps (Palmer & Szymanska, 2008; Palmer & Williams, 2013).

Another CBC method is the PRACTICE Framework (PF) (Palmer, 2007; 2008; 2011). This has similarities to the other models, with different steps in the coaching process utilising cognitive behavioural techniques. However, the PF integrates another type of structure by broadly following a rational problem-solving approach with a prominent goal attainment process, including scaling questions. Anthony Grant (2007: 24) concludes that the literature in coaching consists of "a conceptually incoherent smorgasbord of esoteric positions, methodologies, and ideologies", which could make it problematic for academics or practitioners to understand what underpins actions in practice.

Even though SF approaches are frequently used in a wide range of contexts and clientele (Grant, 2012b; O'Connell & Palmer, 2007), there is less empirical research explicitly looking at how solution-focused approaches work (Grant & O'Connor, 2010). Consequently, "the psychological mechanics of how solution-focused approaches create change is relatively unknown" (Grant 2011, p. 99). The effectiveness of specific

SFCBC methods is still relatively untested; only one study could be found on the PF. This was a randomised controlled trial using an adapted form of the PF performed within a surgical training programme involving 18 participants. At post-training, the group using PF-adapted training scored significantly higher on a procedure-specific skill scale compared with that using the original training material. Additionally, the PF-group made fewer technical errors (Bonrath et al., 2015).

3.1 Theoretical roots of the PRACTICE framework

The PF builds mainly on Social Problem-Solving Theory, informed by both Social Cognitive Theory and Goal Setting Theory.

3.1.1 Social Problem-Solving Theory

At the beginning of the 1970s, D'Zurilla and Goldfried were researching a group of college students in order to create a behavioural method with which to assess social competence. They were surprised to find a significant variation in how students solved their problems and the varied effectiveness of their choices. The study resulted in 'the model of social problem solving' and Problem-Solving Therapy (D'Zurilla and Goldfried, 1971), later expanded and revised (D'Zurilla et al., 2002; D'Zurilla, 1986; D'Zurilla & Nezu, 1982, 1999). Interestingly, as a historical anecdote, Thomas D'Zurilla (1984: 24) commented on the challenges getting the results published and explains that "it was also a time when the Zeitgeist within behavior modification was beginning to shift from therapist-controlled, behavioral interventions, to self-controlled, cognitive-behavioral interventions".

D'Zurilla et al., (2004: 11) define the theory of social problem-solving as inhabiting two different concepts: problem-solving (finding solutions to specific problems) and solution implementation (utilising those solutions in the problematic situation), which in turn are linked to different sets of skills. "Problem-solving skills are assumed to be general, whereas solution-implementation skills are expected to vary across situations depending on the type of problem and solution".

The theory of social problem-solving partly builds on both Bandura's Social Cognitive Theory and Locke's Goal Setting Theory. D'Zurilla et al. (2004) hypothesised that individuals with a positive problem-solving attitude are more likely to use problem-solving skills, not avoid problems, and engage with effort and persistence when problems occur. Social problem-solving is described as the process of problem-solving as it occurs in the natural environment (D'Zurilla & Nezu, 1982). A solution is defined

as “a situation-specific coping response or response pattern (cognitive or behavioural) that is the product or outcome of the problem-solving process when it is applied to a specific problematic situation” (D’Zurilla et al., 2004: 13).

The process of creating a solution also has similarities to Locke’s goal setting theory but is defined in a social and cognitive behavioural context. Problem-solving therapy (PST) is defined as:

> A cognitive behavioral intervention that focuses on training in adaptive problem-solving attitudes and skills. The aim of this positive approach to clinical intervention is to reduce and prevent psycho-pathology and enhance positive well-being by helping individuals cope more effectively with stressful problems in living (Bell & D’Zurilla, 2009: 348).

PST is described as a problem-solving model of stress and well-being, where social problem-solving (defined as real-life problem-solving) (Bell & D'Zurilla, 2009), play an essential part mediating between perceived stressful life events and well-being (D'Zurilla & Nezu, 1999, 2007). The model contains two parts, problem orientation and problem-solving (D'Zurilla & Goldfried, 1971; D'Zurilla & Nezu, 1982; 1999; 2007), leading to a number of potential solutions and an increased probability of finding the most effective solution (Bell & D’Zurilla, 2009). One other aspect includes the creation of positive problem orientation, which includes viewing problems as challenges, beliefs that problems can be solved by someone’s own ability, persistence in problem-solving, and commitment (Bell & D’Zurilla, 2009).

The rational problem-solving style involves the intentional, systematic application of four primary problem-solving skills: (1) problem definition and formulation, (2) generation of alternative solutions, (3) decision-making, (4) solution implementation and verification. Bell and D'Zurilla (2009) found that PST was more effective when the program included training in positive problem orientation (as opposed to problem-solving skills only), with the individual “learn[ing] how to solve problems”, thereby discovering the most effective way of responding.

A meta-analysis of 21 studies revealed that PST was equally as effective as other psychosocial therapies (Bell & D'Zurilla, 2009). Another meta-analysis on the efficacy of PST in reducing mental and physical health problems included 32 studies with a total of 2895 participants - and found the intervention equally as useful as other

psychosocial treatments, and significantly more effective than no treatment, treatment as usual, and placebo treatments (Malouff et al., 2007).

3.1.2 Social Cognitive Theory

Social cognitive theory is founded on an agentic perspective operating through intentionality, forethought, self-regulation by self-reactive influence, and self-reflection about one's capabilities, as core features of human agency (Bandura, 2008). Individuals form intentions, including plans and strategies for realising these (Latham & Locke, 2003). Bandura (1977) states that "it has now been amply documented that cognitive processes play a prominent role in the acquisition and retention of new behaviour patterns" (p. 192).

According to Social Cognitive Theory (Bandura, 1986, 2001), behaviour is influenced directly by goals and self-efficacy expectations; indirectly by self-efficacy, outcome expectations, and socio-structural factors. Goals determine the amount of effort which the individual invests in changing their behaviour and guides action. Self-efficacy refers to a person's belief in their ability to perform a specific action in a particular situation. Bandura (1997) defines perceived self-efficacy as beliefs about personal capabilities; these beliefs mainly affect four processes: cognitive, motivational, affective, and selective.

Someone's self-efficacy can also be related to accomplishments and personal well-being. According to Bandura (1997, 2008a), perceived self-efficacy influences the acquisition of new behaviours by inhibiting old behaviours, disinhibiting new ones, as well as influencing effort, persistence, thought patterns and emotional reactions (Bandura, 1977, 1992, 2006). Self-efficacy has been found to be a stable predictor of behaviour and a number of meta-analysis have confirmed this (Holden, 1991; Multon et al.,1991; Sadri & Robertson, 1993; Stajkovic & Luthans, 1998) and that students who received support with setting goals which were achievable and within reach (albeit still challenging) experienced increases in self-efficacy (Bandura & Schunk, 1981).

3.1.3 The solution-focused approach

The solution-focused approach (SF) can be described as an outcome-oriented, competency-based approach (O'Connell & Palmer, 2007: 278).

> It helps clients to achieve their preferred outcomes by evoking and co-constructing solutions to their problems…The relationship between coaches and clients is a

> transparent one as the coach explains the techniques to the client in the hope that he or she will take them away and use them for themselves.

The SF approach has roots in Solution-Focused Brief Therapy (SFBT), also known as Solution-Focused Therapy (de Shazer, 1986). SFBT can generally be described as future-focused, goal-directed, and focused on finding solutions - rather than the problems which initially led the client to seek assistance. The method was grounded initially within social constructionism (de Shazer, 1991) and the philosophical, post-structural views of language such as Wittgenstein's language games (Bavelas et al. 2014; de Shazer, 1994). A central core of the approach is co-construction, defined as "a collaborative process in communication where speaker and listener collaborate to negotiate meanings, and this jointly produced information in turn acts to shift meanings and social interactions" (Bavelas et al., 2013: 5), The change process in SFBT involves the therapist and client's co-construction of what is important to the latter: their goals, related successes, resources, and the co-construction of meaning, all of which are used to build solutions (Bavelas et al., 2013). Techniques alone do not make a coach solution-focused; instead, as O'Connell & Palmer (2007: 283) note, "it is the quality of the relationship underpinned by solution-focused values that makes someone truly solution-focused".

When it comes to teams and SF approaches, Priest and Gass (1995) explored the differences between two paradigms concerned with facilitating client change: problem-focused (PF) and SF facilitation. In 1997, they continued examining the two styles in a corporate setting with four research groups/teams: two dysfunctional and two functional groups. The SF approach, centred on enhancing the 'solution' by focusing on what clients were doing 'right', emphasises what clients do want to achieve, highlights what is already being done well, accentuates positive client strengths, and focuses on when the problem does not happen.

The PF facilitation approach focused on reducing the 'problem', by asking questions relating to what clients were doing 'wrong', what they didn't want to happen, what could be done better, eliminating negative client weaknesses, and 'why' the problem happened, e.g. what 'caused' and 'maintained' it (Priest & Gass, 1997: 35). The results indicated that the SF approach made a difference for the dysfunctional group, bringing the level of teamwork to almost equivalent to the two functional groups. Changes in teamwork in the SF dysfunctional group were significantly higher than for any of the

other three groups. The authors assume this was caused by the greatest 'news of a difference' (de Shazer, 1988) from their belief system. The functional groups showed positive change with both facilitation techniques, supposedly the result of already functioning strategies within their teams' structure.

Another more recent coaching study including 225 university students (Grant, 2012b), compared the effects of PF and SF coaching questions. The aim was to contrast the impact of positive change on, for example, positive and negative affect, self-efficacy, and goal attainment. The results showed that the SF group had a significantly higher increase in goal approach. The SF approach also significantly increased positive affect, decreased negative affect, and increased self-efficacy, with the SF group generating substantially more actions and steps to reach their goals (Grant, 2012b).

This was recently replicated by Neipp et al. (2016), who confirmed Grant (2012b)'s findings in a different cultural context. Pursuing personally valued goals when developing solutions proved more likely to create resilience, self-efficacy and psychological flexibility (Beasley et al., 2003; Kashdan & Rottenberg, 2010; Peterson, 2006). By focusing on goals and resources needed, the SF approach also tries to "facilitate disengagement from problem-focused thinking and break the debilitating cycles of rumination that often keep clients focused on weakness and deficits" (Grant, 2012b: 335).

The SF approach is usually combined with a theoretical model like CBC or CBT, and thus becomes linked to other methodologies. The most comprehensive, recent systematic literature review was performed by Gingerich & Peterson (2013: 268), which included all controlled studies - published and unpublished - as well as those in any language, to ensure generalisability. The criterion was: "(1) all available, (2) controlled (high internal validity) studies of the (3) end-of-treatment outcomes of (4) SFBT used in psychotherapy and behaviour change applications".

74% (*n*=43) of the studies reported significant positive results; with this rising to 20 of 24 (83%) randomised controlled studies. The evidence suggested that SFBT repeatedly had positive benefits for different client groups, across a variety of fields of practice: "Empirical evidence for SFBT is strong, particularly in the fields of mental health and occupational rehabilitation, thus practitioners can feel confident using SFBT in the context of evidence-based practice" (Gingerich &

Peterson 2013: 280). Additionally, the intervention seemed to be briefer than alternative approaches.

3.2 The PRACTICE framework

The PF represents a continuation of Palmer's earlier work, merging CBT with problem-solving therapy (Palmer & Burton, 1996; Palmer, 1997a; 1997b; Milner & Palmer, 1998; Palmer & Neenan, 2000; Neenan & Palmer, 2000). Originally, the method was based on a traditional problem-solving approach adopted from the CBT field (Palmer, 2007;2011); but over time, the model was complemented with solution-focused (SF) questions and techniques (Palmer, 2008; Williams, Palmer, & Wallace, 2011) (see Table 3.1).

A rational problem-solving approach guides the coaching process forward: time is not spent on in-depth assessment, but rather on psychological or practical issues that prevent the coachee from reaching their goals. The approach has been applied to a broad range of issues, such as stress and anxiety; and in different fields such as coaching, counselling, training and clinical settings (Palmer, 2011) (see Neenan & Palmer, 2001a, 2001b; Palmer & Burton, 1996; Palmer 1997a,1997b; Palmer & Szymanska, 2007; Wasik, 1984). The PF has also been adapted to a team coaching framework (Hultgren at al., 2013), a digital self-coaching programme (Hultgren et al., 2016), and translated into different languages and cultures (Dias et al., 2011; Spaten et al., 2012).

3.1.4 The steps and sequence

The model consists of seven steps built with a clear structure, with specified questions and rating scales to monitor the goal attainment process. The structure and process of the PF, when compared to other coaching models, enables a more structured, controlled and verifiable process suitable for research (Palmer, 2007; 2011) (see Table 3.1). The seven steps are:

- The ‘P’ can represent different items which the problem-solver may wish to tackle: for example, ‘Problem identification’, ‘Performance-related issue’ or ‘Preferred outcome’ (Palmer & Cooper, 2013).
- The ‘R’ represents ‘Realistic, relevant goals’.
- The ‘A’ represents ‘Alternative solution(s) generated’.
- ‘C’ stands for ‘Consideration of the consequences’.

- ‘T’ is ‘Target the most feasible solution(s)’, as not all immediate solutions are easy to implement.
- The ‘I’ and the ‘C’ are one step combined and represent ‘Implementation of the Chosen solution(s)’.
- Finally, ‘E’ represents ‘Evaluation’, encouraging reflection on how successful the problem-solving process has been, followed by a ‘success’ scale, where 1 is not successful, and 10 is very successful.

The first step in the coaching process, where the problem or issue at hand is formulated and reflected upon, is an integral part of the continued process, laying the ground for the other steps that follow. For example, by self-reflecting on what specific area affects an individual’s well-being, the SF coaching questions can create awareness of the issue and its effects. The questions can clarify the steps in the cognitive thinking process and create a problem orientation mindset. This metacognitive process primarily serves as a motivational function, utilising a set of cognitive-emotional schemas that reflect a person’s general awareness, appraisals of problems/issues and problem-solving ability (D'Zurilla & Goldfried, 1971).

After the first step, the coaching process continues with phases including generating of alternative solutions, making decisions on which solution to focus on, an implementation phase (testing out solutions) and a follow-up of the results. This broadly follows D'Zurilla and Goldfried (1971)’s systematic approach using the four primary problem-solving skills: (1) problem definition and formulation, (2) generation of alternative solutions, (3) decision making, (4) solution implementation and verification.

The inclusion of SF questions can also engage the coachee in ‘training in problem-solving’, making a variety of response alternatives (solutions to achieve the goal) available for further self-reflection by considering consequences and feasibility. Incorporated in the PF is an adaptation of Wasik (1984)’s seven-step sequence: problem identification, goal selection, generation of alternatives, consideration of consequences, decision-making, implementation, and evaluation. Palmer (2007) highlights that one key, important difference in PF, compared to Wasik’s model, is that it includes solution seeking and implementation methods based on solution-focused practice (Jackson & McKergow, 2007; O’Connell & Palmer, 2007).

3.1.5 The coaching questions

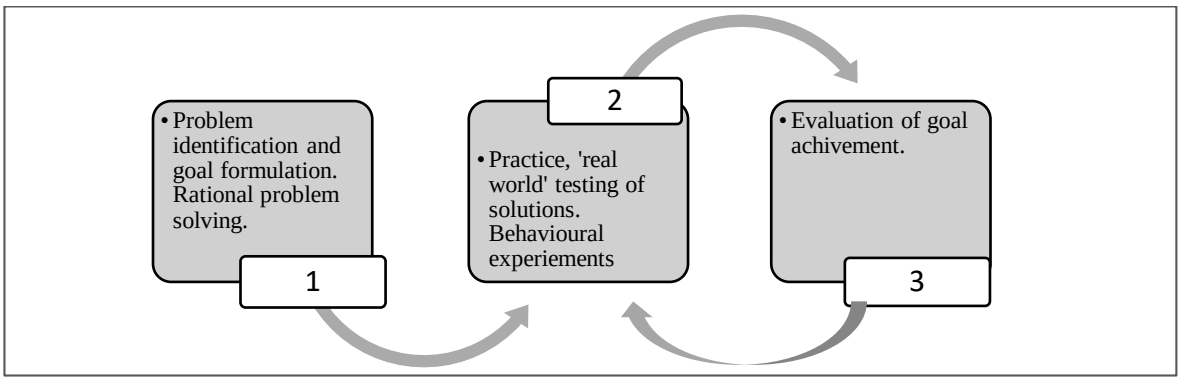
The coaching questions in the framework build on cognitive techniques and strategies. For example, imagery techniques (magic questions), addressing thinking errors, focusing attention on exceptions to an issue and distortions. Questions like 'can the problem or issue be viewed differently?' are hypothesised to shift focus to relative thinking. By reviewing different options, this process can assist in more logical reasoning, challenging current thinking and improving cognitive flexibility. The coach also focuses the coachee's attention on any relevant examples of their competence, strengths and qualities addressing the 'exceptions' when the 'presented problem' or issue is less of a problem. Thinking errors can be based on insufficient data, leading to illogical conclusions based on no real empirical evidence (Palmer et al., 2003b; Palmer & Szymanska, 2007) which affect the coachee's problem-solving attitude.

The scaling questions in the PF aim to reinforce a successful process; and when not successful, enable further exploration on what can be learned to adjust the solution, a process aimed at affecting behavioural regulation. Exploring the feasibility of the solutions in order to achieve realistic, practical outcomes directs attention to the steps involved in the solution-seeking process; greater attentional control can be established when learning the steps in rational problem-solving. When reaching goal attainment, both self-efficacy and personal well-being can be increased, which in turn can influence behavioural change by inhibiting existing behaviours and disinhibiting new ones (Bandura, 1997, 2008). This process can also influence effort, persistence, thought patterns and emotional reactions (Bandura, 1977, 1992, 2006).

3.1.6 The coaching structure

The scaling questions are also used to keep track of progress and what the coachee would need to do to improve the rating (Palmer, 2007). This process (SFCB-questions) is assumed to assist in the selection and decision-making of the most effective responses; and provides a coaching structure with different phases in the coaching process. For example, after Coaching Session 1, when the coachee has identified issues, and formulated goals in the I and the C steps (e.g. Implementation of Chosen solutions), the coachee goes back to the 'real world' and practices the solutions or behavioural experiments.

Figure 3.1: Goal formulation, practice and evaluation steps



The following coaching session focuses on the evaluation of the coachee's practice when testing out solutions, in terms of success in achieving the goal. When successful in doing this, additional time is spent on understanding what the coachee did that made a difference. On the other hand, if the goal was not achieved, possible adjustments are explored. The process is circular and involves monitoring goal achievement regularly through the scaling questions, reformulating goals depending on outcomes; and could involve returning to the testing phase after adjustments, including learning from previous steps.

3.1.7 Goal setting structure

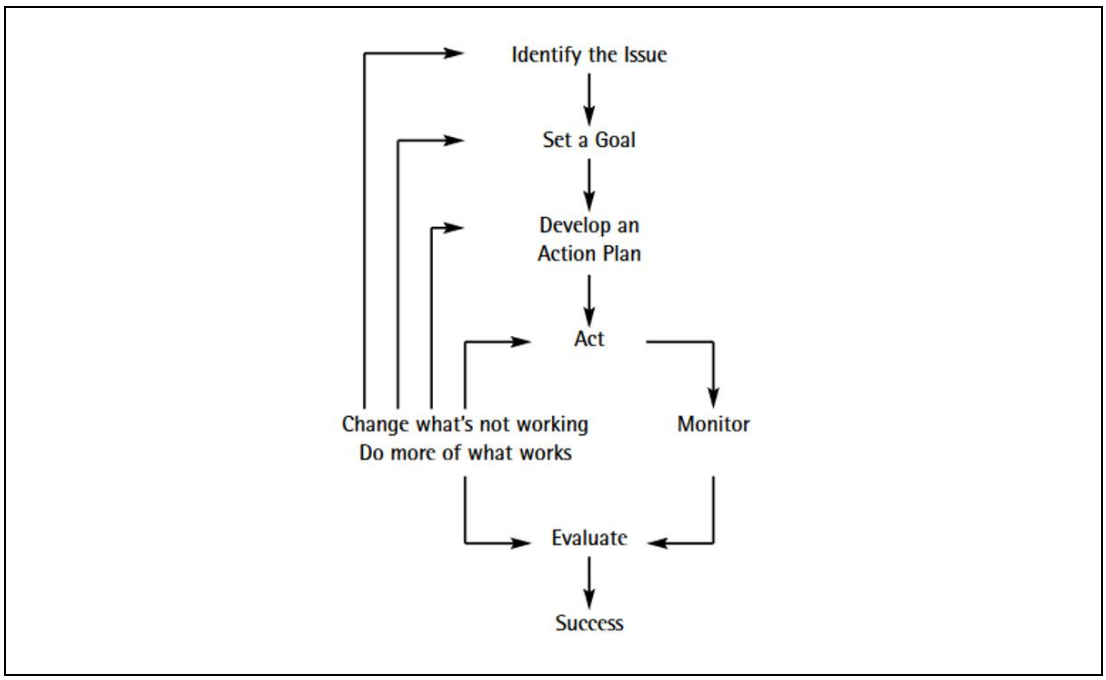
The SMART goals process (Doran, 1981) used in the PF is a way of structuring the goal attainment process and summarises the main parts of goal setting theory (Greene & Grant, 2003). This model is widely used in different areas, such as business and health coaching. The term is an acronym for the five steps utilised when breaking down a goal into concrete actions by making them: specific, measurable, attainable, relevant, and time-based. Since individuals often use experience and intuition to solve problems and are not always aware of the thought processes involved that can help to change different situations, this lack of awareness can also trigger stress for a variety of reasons (Palmer & Cooper, 2013).

The inclusion of goal setting in the PF assists in directing attention to the solution-focused process at hand (see Chapter 1). Research has shown that developing goals helps a person to enhance their motivation levels and remain focused on projects or particular issues that need addressing (Locke, 1996; Locke & Latham, 1990). Latham and Locke (2007: 291) conclude that two important specific factors affect the goals

chosen by an individual: “The importance of the goal to the individual and self-efficacy, namely, self-confidence that the goal for a specific task is, indeed, attainable”.

Another essential concept influencing the processes involved in goal setting originates from the Social Cognitive Theory of self-regulation (Bandura, 1991). Self-regulatory systems are at the centre of causal processes, mediating the effects of external influences, and provide the basis for goal-driven actions. The most critical self-regulative mechanisms “include self-monitoring of one’s behavior, its determinants, and its effects; judgment of one’s behavior in relation to personal standards and environmental circumstances; and affective self-reaction” (Bandura, 1991: 248). Grant (2012a: 149) argues that “goal-focused self-regulation sits at the core of the coaching process”; the role of the coach is to simplify the process of, and steps in, the self-regulatory cycle when moving towards reaching the goal.

Figure 3.2: Generic model of goal-directed self-regulation.



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The self-regulatory cycle is described in the generic model of goal-directed self-regulation (Grant, 2003) and encompasses: 1) Identify the issue; 2) Goal setting; 3) Develop an action plan; 4) Act; 5) Evaluate; 6) Success. The goal-directed process is described as a cycle where the different stages can overlap the next step. Between steps 4 and 5, Grant includes the means of monitoring and evaluating the actions taken (see Figure 3.2).

Table 3.1: The PRACTICE framework (Palmer, 2011) steps and questions.

PRACTICE steps **Statements/questions**	**Actions**
1. Problem identification	Goal focus
What is the problem or issue or concern or topic you wish to discuss? What would you like to change? Any exceptions when it is not a problem, issue or concern? How will we know if the situation has improved? Any distortions or can the problem or issue be viewed differently? Can you imagine waking up tomorrow morning and this problem (or issue or concern) no longer existed, what would you notice that was different?	On a scale of 0 to 10 where '0' is nowhere and '10' is resolved, how near are you now today, to resolving the problem or issue?
2. Realistic, relevant goals developed	SMART goals
What do you want to achieve? Let's develop specific SMART goals.	
3. Alternative solutions generated	
What are your options? Let's note them down.	
4. Consideration of Consequences	
What could happen? How useful is each possible solution?	Let's use a rating 'usefulness' scale for each solution where '0' is not useful at all, and '10' is extremely useful.
5. Target most feasible solution(s)	
Now we have considered the possible solutions, what is the most feasible or practical solution(s)?	
6. Implementation of chosen solution(s)	
Let's implement the chosen solution by breaking it down into manageable steps. Now go and do it!	
7. Evaluation	
How successful was it? What can be learnt? Can we finish coaching now or do **you** want to address or discuss another issue or concern?	Rating 'success' scale 0 to 10.

3.1.8 Coaching and executive functions

Research on executive functions (EF) could provide additional information on factors that impact cognitive and behavioural processes relating to behavioural change. When using cognitive behavioural techniques attempting to change behaviour, the overarching aim could be to affect or support higher-order executive functions (EF). Although there is a lack of consensus among cognitive scientists regarding the definition, there is a basic agreement that the term covers three distinct but overlapping processes (Miyake et al., 2000; Miyake & Friedman, 2012): working memory, inhibition, and cognitive flexibility. These functions enable higher order EFs, such as problem-solving, modification of behaviour in response to new information, planning and generating strategies for complex actions, and the self-regulation of cognition, behaviour and emotion (Collins & Koechlin 2012; Williams et al., 2009).

Higher-level EFs are critical to cognitive functioning as they provide the self-regulatory resources needed to effectively plan and execute goal-directed behaviours (Hofmann et al., 2012) and these processes are involved in planning, initiation, sequencing and monitoring of complex goal-directed behaviour (Royall et al., 2002). EF skills are crucial for mental and physical health, cognitive, social, and psychological development, but also require effort to utilise (Diamond, 2013). The additional effort involves utilising higher function cognitive processes, and additional steps in, for example, the solution process, compared to more automatic thought processes. EFs are also sensitive to the effects of stress and emotional reactions such as sadness (Diamond, 2013).

Coaching interventions at work, such as goal-directed behaviour, could be helpful in lessening some of the mental effort needed when using EF. SFCBC could also provide a specific time for self-reflection: a cognitive process which could compete with the cognitive and emotional demands of work assignments. Hypothetically, an SFCBC could also provide a structure for the cognitive processes needed to initiate behavioural change.

3.3 Manualised interventions

The PF was first tested in F2F condition, then investigated as a digital assisted methodology, through several pilot studies. The self-coaching intervention was adjusted (see Section 3.5). In this research, the PF was utilised as a manualised intervention, by following the steps in the manual. However, with time and when the coachee learned the steps and process, fewer steps could be used. As Neenan and Palmer (2001a, 2001b) note, when the coachee is familiar with the PF, a shorter version can be utilised, such as 'STIR': Select problem, Target a solution, Implement a solution, Review outcome.

Manualised interventions have become a vital part of clinical trial research (Goldstein et al., 2013), can be essential in obtaining funding, and "tend to improve client outcomes and promote replicability" (p.385). There is no real consensus concerning the use of these specific interventions; however, Carroll and Nuro (2002: 396), examined several studies on manualised interventions and found four main areas of concern: "(1) limited applicability to the wide range of populations and problems regularly encountered in clinical practice; 2) excessive emphasis on technique with inadequate focus on the working alliance and other important common elements of treatment; 3) restriction of clinical innovation and the clinical expertise of the therapist; 4) feasibility when the

manual is implemented by clinicians of great diversity regarding experience, discipline, and clinical expertise".

3.4 Behavioural change techniques and determinants

Interventions to change behaviour are essential in prevention (Michie & Johnston, 2012) - but these can inhabit several interacting components in a highly complex way (Craig et al., 2008). Identifying behavioural change techniques and clarifying behaviour "as the end-point of a behavioural intervention cannot be overstated. Very often the end-point is a consequence of the behaviour, not the behaviour itself" (Michie & Johnston, 2012: 1). Gatchel et al. (2007) argue that even well-described methods such as CBT are not always adequately defined in research. As a term and method, CBT can vary in terms of which behavioural techniques are used, e.g. self-instruction, development of coping strategies or goal setting. Carey et al. (2016) identify significant links ($p < .001$) between behavioural change techniques and mechanism of actions from published health intervention literature (see Table 3.2 below).

Table 3.2: Behaviour change techniques and mechanism of actions

Behaviour Change Technique		Mechanism of Action	# Papers
Feedback on Behaviour		Subjective Norms	19
Self-monitoring of Behaviour		Behavioural Regulation	18
Information about Health Consequences		Knowledge	18
Pros and Cons		Attitude towards the behaviour	9
Behavioural Practice/rehearsal		Skills	24
Graded Tasks		Beliefs about Capabilities	28

From "Links between behaviour change techniques and mechanisms of action: Evidence from the published intervention literature" (Carey et al., 2016: 28).

In the PF, three different behavioural change techniques were identified as theoretically influencing behaviour change intervention. These techniques were sorted based on Carey et al., (2016) (see Table 3.3 below).

Table 3.3: Behavioural determinants, behaviour change techniques and mechanism of action.

Behavioural determinates /Theory	Behavioural change techniques	Mechanism of action
Cognitive behavioural theory	**CB-theory based coaching questions**	**Affective and cognitive processes, self-efficacy (learning and thinking processes).**

Social cognitive theory		
	Self-monitoring of behaviour	Behavioural Regulation
	Feedback on Behaviour	Subjective Norms
	Pros and Cons	Attitude towards the behaviour
Goal setting theory	**Goal attainment process, Goal Attainments Scaling**	**Learning skills in goal setting**
	Behavioural Practice/rehearsal	Skills, formulating specific, realistic time-framed goals. Attention control
	Graded Tasks	Beliefs about Capabilities
Social Problem-Solving theory	**Problem-solving questions**	**Training in adaptive problem-solving attitudes and skills.**
	Behavioural Practice/rehearsal	Skills in the appraisal of problems: positive problem orientation, the process of problem-solving.
	Graded tasks	Beliefs about Capabilities

The PF's main behavioural mechanism of action could potentially consist of: a) affecting affective and cognitive processes, resulting in increased self-efficacy; b) learning skills in goal setting and attainment, increasing the possibility for goal solutions; c) training in adaptive problem-solving, assisting in the goal attainment process.

3.5 Different applications of the PRACTICE framework

The primary study investigated three different modalities of PF - Face to face (F2F), Skype (audio only), and self-coaching (SC) - through a digital coaching programme. The rationale for the comparison between the three modalities was to investigate the feasibility of the adapted SFCBC method combined with technology. The F2F method included meeting at a specific location away from the work environment; regular bookings were made by the coach. The Skype application was performed at work, in the coachee's office. If the coachee did not have a specially dedicated room (for example, when performing work in an open landscape), meeting rooms and corridors outside the office were used.

The coaching sessions were planned and booked during the dialogue between the coach and coachee. Participants in the self-coaching group took part in a Skype meeting with the coach at the start of the intervention. The meeting featured an introduction to the program and allowed room for questions that the coachee might have regarding the

method. Additionally, the coachee was followed up on regularly, usually every second week, in terms of how many times the program had been used and if the coaching had completed or was on pause; and in cases of the latter, why it had been paused.

The intervention was graded into three conditions:
1) F2F = Full sensory input: involved sensory input (coach-coachee) from audio, body language, visual expressions and environmental input, e.g. a quiet room.
2) Skype = Part sensory input (coach-coachee) from audio only, performed within the coachee's work environment.
3) Self-coaching = Part sensory input (coachee-digital programme). Input from the coaching programme only (visual, coaching questions and segments, contextual program input, e.g. design features) within the computer environment, at the coachee's workplace. By conveying information and education about how to use the program and goal rating scale (GAS), it was hypothesised that familiarity with the technology and understanding the process could be more easily established. However, participants set their own goals, identified areas of importance, and the reflective process and exercises were performed with the help of both the program and coaching questions.

3.5.1 Self-coaching program

The SC program was constructed based on the PF and questions (see Table 3.1) and followed several development phases. Phase One involved testing the coaching method (Study 1); while in Phase Two, the technologies were tested and evaluated. Phase Three included the creation of the program, adjusting according to findings from Phase Two.

Table 3.4: Development and testing phases self-coaching program

Development and testing phases	
1. Test of PF method	F2F coaching group
2. Test of self-assisted method	PF was tested using the telephone and self-assisted coaching
3. Creation/development	Adjustments and creation or building the program to adjust according to findings from Phase 2
4. Test of the virtually assisted program	Test fit between technology and PF
5. Main study	The main test of the virtual self-coaching program compared to F2F and Skype application.

In Phase Four, the new program was tested in a pilot study and adjusted according to results. Finally, in Phase Five, the SC programmed was used in the main study.

The metacognitive factor, self-reflection, is an integral part of any self-administered methodology; and as Grant (2003) notes, clinical and non-clinical change programs (such as psychotherapy and coaching), usually encourage self-reflection, increase insight into the issues at hand, which could facilitate goal attainment and behavioural change (Grant, 2003). Interestingly, Grant et al. (2002) found that in this case, life experiences, the group using journals to note things down, had higher levels of self-reflection but lower levels of insight than those not documenting their experiences. Their findings suggested that 'journal-keepers' were stuck in the process of self-reflection: primarily engaged in understanding their personal behavioural, cognitive and emotional reactions, rather than moving towards goal attainment (Grant et al., 2003: 256).

When utilising a self-administrated coaching intervention, Goal Attainment Scaling (GAS) was thought to assist the participant in moving forward in the goal attainment process, avoiding getting stuck in analysis (self-reflection) on the issue at hand. It was hypothesised to be especially important as the program was self-assisted, without a coach present. The GAS (see, Chapter 7, section 7.6.5) addition to the self-coaching program was hypothesised to strengthen and focus attention on the goal attainment process (see Chapter 8).

3.6 Discussion

The PF largely remains untested in research - although the cognitive behavioural and solution-focused techniques and elements stem from a well-researched background in CBT. The format of the method, with standardised or manual-like components (steps, segments and SFCBC-questions) was believed to strengthen reliability further when comparing different applications.

The rationale for choosing the PF owed mostly to the 'need' of the structure when constructing a stand-alone coaching program for a self-coaching condition. Where a specific structure was important when translating the method to psychological information communication technology (PICT), the specific building blocks, techniques, and methodological execution in distinct steps, including scaling questions, permitted adaptations to new applications like SC and team coaching. The clearly defined structure and simplicity of the PF made it easy to understand for the user, who did not need to educate themselves in coaching methodology to be able to use the

program. The simplicity of the model was thought to create a greater sense of 'method inclusion' for the user.

Method inclusion was defined as a component of the method (e.g. 'user-friendliness'), which could be easily described, understood and applied by the participants themselves, increasing the likelihood of them taking personal ownership of the coaching process, including goal attainment. In a work environment context, coaching interventions often compete for attention with ordinary work assignments. A structured SFCBC framework with specific time set to focus attention on EF, such as problem-solving, could support and reduce effort needed in planning, reasoning and problem-solving by assisting in the cognitive structuring of thinking and execution of solutions which create change.

However, a structured manualised method, performed and adjusted to research conditions, may also confine the coaching process, making it more technical as the coaching conversation becomes more strictly controlled by questions and steps. The controlled process might affect the building of a coaching relationship, as the primary focus of the coaching conversation is focused on moving from issues to solutions. With a solution focused approach, the coach does not focus primarily on the problems the issue creates (problem-focus). Instead time is spent on exploring, for example, cognitive behavioural thought processes which might be interfering with the goal attainment process - with the ultimate goal that the coachee discover solutions for themselves. To use the PF in this fashion, the aim and content of the coaching process might be necessary to clarify further, with expectations addressed. The coach also needs to create a working relationship more quickly, with their working and contextual experience playing an integral part.

Chapter 4: Emerging psychological information communication technology and eHealth

4.1 Abstract

3.9 billion of the Earth's 7.5 billion inhabitants (Internet world statistics, 2017) are now online. In the context of the fast-moving development of new technology, a provocative question to ask is if 'live' psychologists and medical doctors will soon be replaced by avatars or artificial intelligent human agents?

This chapter aims to describe part of the development of the field of eHealth, with a special focus on psychological information and communication technology (PICT). A number of research areas impact PICT, like artificial intelligence (AI) and virtual reality (VR). The so-called 'virtual revolution' has long passed, which gave birth to artificially intelligent human representations that can act on behalf of, or without, a human controlling the environment and dialogue. Today, virtual reality simulation technology permits the exploration of new territories or environments which are impossible to create in an ordinary physical room when meeting someone face-to-face. These technical innovations might represent a long overdue refreshment of psychological interventions, lowering certain barriers by offering new ways of delivering psychological interventions and making them more accessible to the general population.

At the same time, new barriers might present themselves. PICT is, in different forms, already in use in healthcare; but from a methodological and ethical standpoint, there is a pressing need to further understand and explore the implications of this for the psychological field at large, and systematically differentiate between conditions and interventions when PICT could be useful and when not. A stepped well-being model is presented, which aims to contextualise a palette of different cognitive behavioural methods, ranging from preventive interventions such as virtual self-help programmes to coaching and psychotherapy.

4.2 Introduction

PICT tools that have been developed over the last decade aim to make different psychological methods and interventions more accessible and available to the general public and in the workplace, such as virtual cognitive behavioural therapy (CBT) and coaching. New start-up tech companies are moving into the area of eHealth, outside of

ordinary health care organisations. E-clinics are being opened, while conferences draw keynote speakers from companies like Microsoft, Samsung, Intel and Orange. Clearly, there is heightened activity in this area. Psychological interventions are now to some degree connected or delivered within eHealth, including virtual or e-psychotherapy. WHO (2005) defines eHealth as:

> The cost-effective and secure use of information and communications technologies in support of health and health-related fields, including healthcare services, health surveillance, health literature, and health education, knowledge, and research (p. 109).

eHealth represents a transfer of health resources and health care by electronic means (WHO, 2016). The EU Commission policy on eHealth (2012) defines this as 'tools and services using information and communication technologies (ICTs) that can improve prevention, diagnosis, treatment, monitoring and management'. One of the EU's goals is 'to make eHealth tools more effective, user-friendly and widely accepted by involving professionals and patients in strategy, design and implementation' (European Commission, 2012). The transformation process of ICTs within healthcare involves not only the information and communication system as pure IT systems, but also the methods used by different professions: methods used originally face-to-face, between patients and doctors or clients and psychologists. eHealth systems encompass a large array of different areas, like communication, patient data and e-referral systems; strong political, economic and technological incentives are driving development.

The 'EU has contributed more than €500 million in research funding to the development of eHealth tools and systems since the early 1990s' (NHS Confederation, 2015). When incorporating PICT into eHealth, healthcare and privately funded systems, the issue of psychology being absent from the STEM disciplines becomes apparent. A report published by the American Psychological Association (APA, 2010), the Presidential Task Force on the Future of Psychology as a STEM Discipline, states:

> Psychological knowledge is essential to scientific and technological innovation. Technology requires the use of human operators, and understanding human capacities and limits is essential for implementing technological advances. Nevertheless, psychology is often excluded from the list of core disciplines responsible for

> scientific and technological progress – the STEM disciplines of science, technology, engineering, and mathematics (APA, 2010, p.2).

Psychological information communication technology (PICT) is defined here as describing ICTs combined with coaching psychology and psychotherapy: two related methodologies within the psychological domain. Practitioners of coaching psychology operate in the non-clinical population, focusing on well-being and performance aspects. Coaching psychology is defined as 'enhancing well-being and performance in personal life and work domains, underpinned by models of coaching grounded in established adult learning or psychological approaches' (Grant & Palmer, 2002).

When looking at research in this area, a somewhat mixed picture emerges, perhaps thanks to the multitude of methodological approaches, conditions and intervention groups used in a variety of studies. On the one hand, some results seem to indicate that 'the expectation that remote, expert support services would be widely used and would, in turn, remove the strain of patient demand on regular health services did not become a reality' (Hunt et al., 2015, p. 1). One factor here is the 'technological divide', especially in ethnic minority groups and the elderly population.

On the other hand, there is now a substantial amount of research which shows that, in some conditions, virtually assisted therapies where the therapist has a number of virtual (telephone or Skype) or/in combination with, face-to-face meetings, or/in combination with self-assisted cognitive behavioural therapy software, have a similar effect as meeting more traditionally (Andrews et al., 2010). Barak et al. (2008) conducted a meta-analysis of 92 studies examining virtual psychotherapeutic interventions involving 9,764 clients, and concluded that the findings 'provide strong support for the adoption of online psychological interventions as a legitimate therapeutic activity' (Barak et al., 2008, p. 1).

When trying to clarify the different approaches and methods utilised in PICT, the word 'tool' is itself often used. A tool is, by definition, 'something that helps you to do a particular activity' (Oxford English Dictionary, 2016). As the development of PICT progresses, these so-called tools are becoming more and more independent from interactions with a psychotherapist or a coach, and therefore have the potential to become a self-sustainable intelligent system. The transformation of the social and scientific landscape has, for example:

> set the stage for Clinical Virtual Reality and the "birth" of intelligent virtual humans. Seminal research and development has appeared in the creation of highly interactive, artificially intelligent (AI) and natural language capable virtual human agents that can engage real human users in a credible fashion (Rizzo et al., 2011, p.1).

Another example is virtual reality therapy, used to treat phobias such as fear of flying or PTSD by re-creating a traumatic situation (McLay et al., 2010; Ready et al., 2010; Riva, 2009). These scenarios are either too costly or nearly impossible to replicate in real-life therapy (Cukor et al., 2009). Psychological tools and treatments have historically been driven by military applications.

One of these artificial intelligence coach programmes, 'SimCoach', is described as:

> an intelligent, interactive virtual human agent programme. Designed to attract and engage service members and their significant others who might not otherwise seek help because of for example stigma, lack of awareness or a general reluctance to seek help' (Rizzo et al., 2011 p.1).

One goal is to create an experience that will motivate users to take the first step to empower themselves with regard to their healthcare – whether their psychological health or general personal welfare – and encourage them to take the next step towards seeking more formal resources available with a live provider. Yet 'SimCoach' does not provide diagnostic or therapy services (Rizzo et al., 2011).

Other examples of relatively new virtual interventions/methods are the use of avatars, which utilise virtual reality (VR) as a digital environment where the interventions take place. An avatar in this kind of intervention can be defined as a digital model human being that either looks or behaves like the user it represents, whereas in traditional immersive virtual environments an avatar is rendered according to the user's wishes but may not resemble them (Bailenson et al., 2006). Through VR, it is possible to create new scenarios for human experience, which can be used to coach clients through change. Various virtual environments can be chosen, such as business locations or naturalistic scenery settings. One example which Ulmer (2013) explores is an ongoing study in virtual reality coaching, where the client describes their situation, but the process of doing so is restricted to a mainly problem-focused view. The aim is to assist

the client to move beyond a state of confinement by guiding them into a solution-focused mindset; this is hypothesised to enable them to gain access to their potential for creating new options of reaction or behaviour. This process is enhanced with virtual reality components, such as different rooms, exterior environments and situations.

When adapting the psychological intervention to virtual conditions, one area emerges as important to explore further: the relationship aspect. The relationship is considered an essential factor in both therapy and coaching interventions (Kampa-Kokesh & Anderson, 2001; O'Broin & Palmer, 2006), and for the coaching intervention outcome (McGovern et al., 2001; Gyllensten & Palmer, 2007). Coaching and coaching psychology literature repeatedly underline the need to establish and maintain a meaningful relationship (Wasylyshyn, 2003; Bluckert, 2005; Stober & Grant, 2006; O'Broin & Palmer, 2007; Kemp, 2008). Critical factors associated with the coaching relationship include feelings of trust (Lowman, 2007; Luebbe, 2005).

The question which follows using virtual psychological intervention technology is how to build and maintain a relationship without meeting face-to-face. One study in virtual CBT exploring the relationship aspect found that participants were motivated to persist when their overall need for relatedness was satisfied through a sense of belonging towards partners, friends and family. Connectedness with the therapist and the participant's ability to identify with the virtual modules also gave a sense of relatedness. The author suggests that improving these motivational aspects may increase patients' persistence with virtual CBT (Wilhelmsen, 2013).

A randomised control trial measuring face-to-face treatment for depression and virtual CBT found that a strong working alliance could be established in a virtual setting, comparable to that established in face-to-face settings (Preschl et al., 2011). The amount of time spent virtually with the client matters; Andersson et al. (2009) concluded that around 100 minutes per client over a 10-week programme was sufficient. Further research suggests that additional time spent over 100 minutes would not contribute to the outcome (Andersson et al., 2009). In a study on virtual mentoring, De Janasz et al. (2008) found a positive relationship between the times spent connecting virtually with the mentor and perceived support, as well as overall satisfaction with the relationship. The average amount of time spent interacting was 5.5 hours per month (De Janasz et al., 2008).

4.1 Psychological information and communication technology

PICT covers a broad area of different methods, conditions and technology. When trying to sort the development of interventions, one can describe the general historical process in stages, where Stages 4 and 5 represent more futuristic speculation:

Table 4.1: Stages 1-5 of PICT development.

Stage	PICT	Responsible part
1	Phone and e-mail,	Human-assisted
2	Audio and video software	Human-assisted/self-assisted
3	Virtual reality and avatar interventions	Human-assisted/self-assisted
4	Artificial intelligence (AI) interventions	AI assisted/self-assisted
5	AI as self-learning/developing outside the originally programmed software	AI controlled/dependent or non-dependent on programming (programmers)

In the first stages of PICT, the technology acted more like a simple electronic carrier for human interactions, with communications transferring voice and visual representations of the human relationship. In Stage 3, the responsibility for the intervention and the carrier of the methodology can still be based on a human relationship, even though the meeting space is virtually created - but could also be used as a self-assisted tool. In Stage 4, the virtual intervention could become more independent of any human-operated interactions. The responsibility for the method and outcome could be with the programmers and developers of that specific AI program.

In Stage 5, if the programme is designed to be self-learning and adaptable, developing by itself as a result of its interactions with clients, that could mean that it also develops methods and ways of reacting based on the 'user', which could make each copy different. Eventually, the software and AI programme could develop its own 'personality' based on the history of previous interactions with its user, even though this perhaps sounds more like science fiction than reality.

4.1.1 Definitions

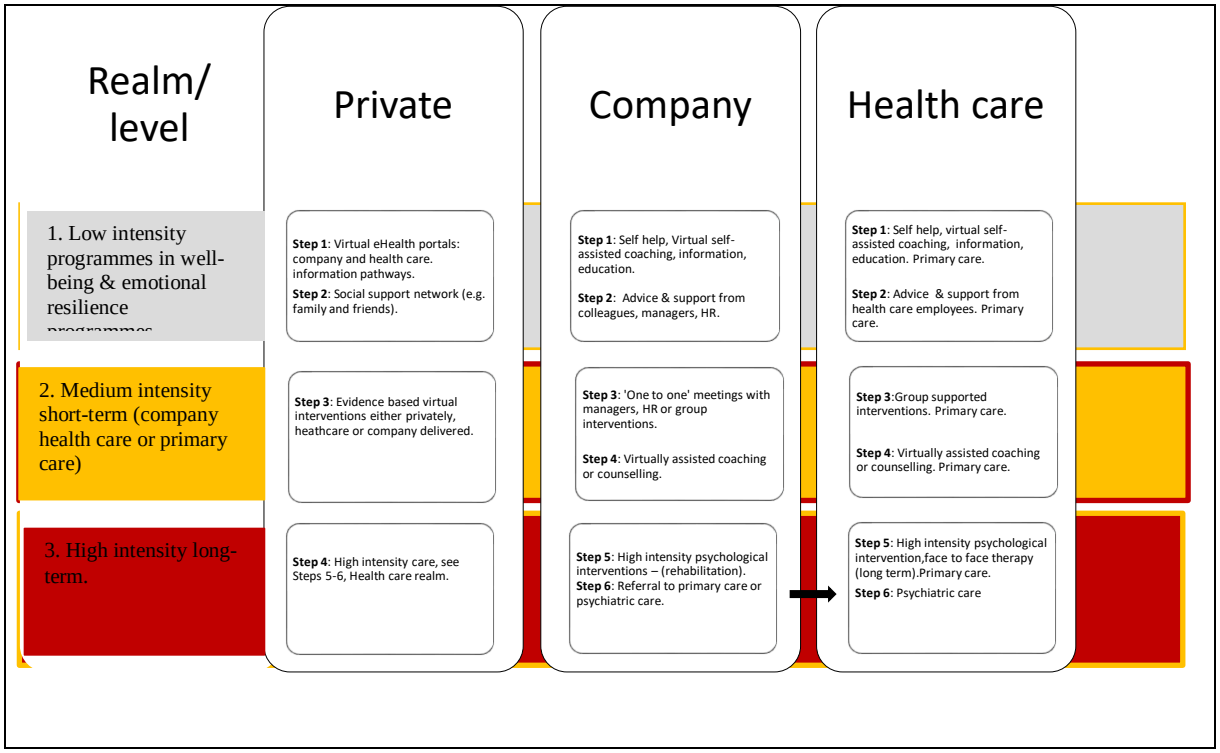
There is a multitude of definitions of PICT. Today, virtual coaching or virtual therapy usually refers to a method which combines a coaching or therapy programme (software), phone, e-mail, video and chat.

1. Virtual interventions: a human-based relationship that takes place solely via virtual/electronic communication (telephone, email, live chat, and video).
2. Virtual self-assisted intervention: a computerised, self-administered software solution.
3. Virtual reality intervention: a three-dimensional environment virtual software program, involving human interaction through avatars.
4. Artificial intelligence (AI) intervention: AI software (a software programmed robot) involving an AI-based intervention programme with chat, text, audio, video, and/or VR.
5. Mixed virtual intervention: a human-based relationship that takes place face-to-face and via ICT (telephone, email, live chat, video, PICT programmes).

When attempting to incorporate the different types of PICT into a model for e-health, a Stepped Well-being Model is proposed. This model aims to describe interventions in Stages 1 and 2 (see Table 4.1). Even though Stage 3 interventions are being used to some extent, they are not commonly available today to practitioners or clients. The Stepped Well-being Model was constructed in an attempt to summarise and clarify the field of implementation and the different psychological methodologies in use today, and their position on the 'well-being – ill-being spectrum'. The model outlines the realm (private, company and healthcare), intervention level (low, medium and high intensity), and type of intervention (for example, coaching and psychotherapy delivered within the different group steps: face-to-face to virtually assisted).

4.2 The Stepped Well-being Model

Figure 4.1: The Stepped Well-being Model.



It was named the Stepped Well-being Model to emphasise the different preventive steps which exist or could be developed in a non-clinical sense before a symptom arises that needs more intense treatments and contact with healthcare professionals. With the introduction of eHealth systems, steps 1 and 2 could involve different PICT types. The model also includes the private and company realm to broaden the intervention context of personal well-being. Workplace or company health care play an important part in promoting well-being in the workforce. Stepped care models are used in some health care systems, such as the National Health Service (NHS), to discriminate between the different levels of care needed for different types of conditions (National Institute for Health and Clinical Excellence, 2006; 2009a, 2009b).

The model also includes the private or individual realm. Today, individuals can access social networks or information portals for psychological support, as well as reaching out to friends and family. This can encompass conditions considered as ‘normal psychological reactions’ such as divorce or loss, normally occurring over a lifespan. The model also includes the company realm: many companies offer different health care options to their employees.

Connecting the different realms in one model which deals with psychological well-being or ill-being could provide an overview and highlight potential development areas. Psychological interventions are being deployed over a broad spectrum; it would be useful if boundaries existing today between the different realms could be more flexible and streamlined for the benefit of individual well-being.

4.3 Discussion

Psychological interventions and methods are being incorporated into technology, not only in the area of eHealth but in different AI technologies (for example, self-driving cars). The psychological discipline plays a central role in the development of emerging technology in many areas. Psychologists and researchers in the social sciences play a crucial part, and need to be present in the debate and the development of these tools. Computer technology is pushing the psychology field and its practitioners into new unknown territories: a process which, properly handled, could enrich the theories and methodologies in a highly fruitful way. New methods that could offer more creative and efficient ways of making psychological interventions accessible; and potentially, PICT could fill a gap in currently economically constrained healthcare systems.

Although a somewhat mixed picture emerges from the research, perhaps as a result of the multitude of methodological approaches, conditions and intervention groups used across various studies. For some groups, PICT tools, in their current development stage, could offer assistance, guidance and treatment options as presented in Steps 1 and 2 (low and middle intensity) of the Stepped Well-being Model; but for conditions such as those described in Step 3 (high intensity), the need for human-assisted technology and a relationship with a professional becomes necessary.

Another area calling for careful consideration is the so-called digital divide when using PICTs in eHealth systems. This divide is between population groups: individuals with sufficient skills in new technology and those lacking experience or knowledge. These potential barriers will have to be addressed and planned for.

Even though some virtual interventions, such as CBT in some conditions, have been appropriately researched, others such as coaching still have to be further investigated for potential efficiency. The research complexity involved when using more and more advanced software like VR and AI applications could lead to areas other than the methodology (e.g. theoretical approach) affecting research outcomes. Researchers of future PICT might have to take into account other factors, such as how immersive the

technology is. This factor in itself could strengthen the psychological intervention in some modalities, while making it less effective in others.

One other question that arises is whether some psychological theories and methods are better equipped for virtualisation or digitalisation then others. Yet if the theory is robust enough to tolerate differences in modalities, there might be no need to control the changes in methodology which accompany new technologies. The field of PICT could move at a rate which will shadow current exponential technological development; therefore, it seems vital that psychology is represented as a discipline when constructing and developing different virtual interventions, like AI or VR, which specifically target human behaviour and aspire to assist in positive change.

Assessments of the client and current psychological issues need to be addressed and a choice made of the appropriate method for reaching effective outcomes. One size does not fit all; and logically PICT can only be administered after an assessment. In the future, such factors have to be carefully considered and safeguards put in place so that future programmes operate ethically and are built on evidence-based methodology.

When using audio and visual 'carrier technologies' to, for example, bridge over distances or minimise travel time, human-operated technology is what helps to build a relationship. The term 'technology' refers to the application of scientific knowledge for practical purposes (Oxford English Dictionary, 2016). Yet new technologies may also partly affect methodologies. For example, when constructing a PICT in the form of a virtual self-coaching programme, different parts are added to fill the gap, i.e. the lack of a human operating the method and interventions, as in traditional face-to-face modality. These added parts can be pictures, multimedia content, interactivity with the programme, colours and dialogue sections and information.

When altering the method of delivery from human to self-assisted intervention, the programme is usually built on a psychological theory which has guided its construction. Several parts will have been included to make the programme more motivating and interesting to the user – but how these additional elements in themselves affect the treatment outcome is unknown. Could it be that these additional components can change the methodology in such a way that the outcome when measuring effects will become hard to isolate? Is it the technology itself that brings forward certain outcomes, or is it the methodology? Are these two fields merging, so that methods become technologies? One definition of methodology describes it as a 'more general research strategy

outlining the way forward in research by identifying the methods used. The methods explained in methodology define the means of data collection or how a specific result should be calculated' (Howell, 2013).

So is it really known how much a colour or multimedia content added to a psychological method will affect the original theory-based intervention? When introducing or combining more complex technology to psychological interventions, this adaptation process might also change the methodology and move away from the original theory, which could cause an effect on the outcomes. Adjusting and understanding the different new variations or components of technology and their effect will be vital in interpreting the outcomes of studies in this area. Even more so given that emerging technologies of the future will become more than mere carriers of human communication and interaction (as in Skype) and might be used instead of humans or with humans playing a lesser part than today.

Virtual reality and AI-supported psychological interventions still lack evidence of efficiency; but in time, might offer additional options and could benefit from VR, creating virtually tailored programmes where interventions could incorporate a new set of tools: different environmental settings like landscapes, scenes, social situations and assignments. Virtual interventions could be designed via the latest research in neuroscience and built to simplify further cognitive and information processing learning and change, perhaps also making the process a more playful experience. Studies suggests that the human mind perceives, for example, VR technology as similar to a real experience, which is also the aim of the method/technology.

In cases of technology designed with a high immersion factor, the impact of the intervention could potentially also affect the user to a greater extent. When humans interact in the 'real world', environmental factors are less controlled, and other senses apart from visual/auditory are involved in interpreting and analysing the situation: for example, body language and smell. In a VR environment, most factors can be controlled beforehand, which could mean that the methodology can also control the interpretation itself to a much greater extent. The pace of the intervention might also differ between VR and face-to-face interventions – for example, the allocated time for reflection and thinking.

Virtual development in the field of psychology also raises a variety of concerns. The main areas of discussion seem to focus on whether electronic or virtual methods are

efficient, valid and effective. Ethical issues regarding virtual services are also debated. In the future with the introduction of AI coaches or therapists, which will most likely connect and communicate in a human-like fashion, gives rise to even more questions on who actually is responsible for the intervention. Furthermore, the potential impact on a person using a fully developed AI human agent as compared to human assisted technology. There is also an 'open border' scenario, with the professional administering the intervention practising in one country, while the receiver lives in another, where possible regulations and licensing demands differ. Cultural aspects might have to be considered when users can access programmes in different regions in the world, where methods and theories guiding the interventions and programmes might differ. Safety issues are also discussed: how can the virtual conversations be kept safe from unwanted intrusion by a third party? However, there are several special measures through which to secure information: for example, encryption techniques.

Some authors have also underlined the importance of a media fit; in other words, all clients might not want to act as an avatar or feel comfortable in a 3-D world. Also, instructional elements have to be considered, as users will need to learn how to use the programs; and when using virtual reality coaching, attention needs to be given to the functionality of the client's computer. Since virtual coaching can be executed without actual face-to-face contact, obvious difficulties can also come into play, beginning with such fundamental issues as knowing the identity of the person one is speaking with, their age, emotional state and gender. However, with increased use of/and accessibility to high definition video options, similar face-to-face contact can be established.

As the American Psychological Association (2010) argue, it is problematic that psychology is so often excluded from the core STEM disciplines responsible for scientific and technological progress. With new actors or suppliers/developers entering the eHealth field and aiming to change human experience and behaviour, it feels important to broaden this discussion and bring the psychological domain more closely into the field of technological development. Perhaps an oversight authority is needed on a national level, with the means to control the development of these applications, making sure that programmes comply with regulations in, for example, ethics and methodological approach.

What was previously performed by professionals with licences to practise psychology might in future be sold as a software program with an AI therapist. The logical conclusion would be to ensure that any future stand-alone virtual program in this area

complies with evidence-based methods or development practices: which could, by default, include psychologists in leading roles. The educational system and universities responsible for psychologists' education might also need to develop a separate area of psychology that deals specifically with PICT or psychological technology ('psytech', for short).

4.4 Conclusion

With the increased focus on well-being, prevention and early detection of stress and mental illness, virtual coaching interventions can serve as a first line of defence and lower barriers to seeking assistance with issues relating to, for example, early signs of work-related stress. With easy-access, mobile, cost-effective solutions focusing on the coaching aspect of the communication instead of the therapeutic framework, virtual coaching could make a difference, reducing symptoms in sub-clinical populations. It is important, however, that psychologists embrace and take the lead in the development, scientific and ethical discussions around the use of PICT and VR/AI systems, to ensure future technological developments in line with evidence-based theories and practices.

Chapter 5: Cognitive Behavioural Coaching in a Company Health Care setting.

5.1 Introduction

5.1 Summary of study

The aim of the pilot study, planned with a descriptive quasi-experimental design, was to examine if solution-focused cognitive behavioural coaching (SFCBC) could act as a proactive and feasible method to enhance well-being among a population of employees; and to examine the working hypothesis that SFCBC was a feasible method to utilise in increasing subjective well-being and reducing signs of stress among employees.

Sixteen participants were recruited over eight months, all of whom had actively been seeking assistance at a company health care unit for work-related stress. A combination of quantitative and qualitative data was collected at two time points: pre-coaching and three months post-coaching. A semi-structured interview was undertaken at the latter point, to capture participants' perceptions of the intervention. The quantitative results indicated that both subjective well-being and signs of stress were positively affected three months post-coaching. However, due to an extraneous variable, an economic recession, it was not possible to convincingly demonstrate a causal link between the intervention condition and observed quantitative outcomes.

Results from the content analysis suggested that SFCBC affected cognitive and behavioural aspects, including decision-making and awareness of the relationship between subjective well-being, stress, and internal and external demands at work. The results also indicated that at the final measurement, there were improvements in self-confidence and changed perceptions of work demands.

5.1.1 Research background

The rationale for the launch of the study was that the participating company health care (CHC) organisation had observed that employees experiencing stress who asked for support often necessitate long term interventions. These interventions were at secondary and tertiary level, e.g. rehabilitation, sick leave, long term psychotherapy or counselling. Even though CHC units in Sweden work with a wide range of conditions, whether physical or psychological, clinical conditions are referred to psychiatry specialists or primary care for treatment.

The main focus for psychologists in company health care usually centres on work-related issues and the relationship between organisational factors and employee well-being (Swedish Company Health Association, 2019). In Sweden, generally, the CHC is responsible for supporting organisations with expertise in, for example, well-being and risks in the working environment. CHC is regulated by the Work Environment Act (Swedish Work Environment Authority, 2019) and an independent expert resource regarding the working environment and rehabilitation. The mission of the health care organisation is to reduce or eliminate workplace environmental risks, both physical and psychological, by assessing and preventing known and unknown (e.g. new) health risks.

A typical Swedish company health care organisation consists of interdisciplinary teams and professionals, including psychologists, medical doctors, health and safety engineers, nurses and physiotherapists. Interventions in a health care organisation can address three stages of work-related stress: the causes (primary stage); actions to help individuals cope with stress (secondary stage); and actions on the consequences of stress, for example, rehabilitating employees (tertiary) (Eurofound, 2007).

The gap concerning proactive methods led to the initiation of the study. One idea was that SFCBC would appeal to employees under stress, but not yet suffering from stress-related ill-being. The use of SFCBC in a 'clinical' setting was new for the CHC organisation and psychotherapy; counselling had been its dominant method. Cognitive behavioural coaching (CBC) has become one of the most widely-used approaches within coaching psychology (Palmer & Whybrow, 2007). One definition describes the method as:

> An integrative approach which combines the use of cognitive, behavioural, imaginal and problem solving techniques and strategies within a cognitive behavioural framework to enable coachees to achieve their realistic goals (Palmer & Szymanska, 2007, p.88).

Subjective well-being (SWB) is defined by Diener et al. (2002) as 'a person's cognitive and affective evaluations of his or her life' (p. 63). The cognitive element refers to what someone thinks about their satisfaction in global terms (life as a whole) and domain terms (in specific areas of life, such as work and relationships). An individual with a high level of satisfaction with their life, who experiences a greater positive affect and little or less negative affect, would by definition be classified as

having a high level of SWB. Empirical evidence points to a positive causal effect of SWB on individuals' physical health (Diener & Chan, 2011). SWB has also been suggested to have an indirect effect, as individuals with higher SWB are more likely to engage in health-promoting behaviours and practices (Grant et al., 2009). Research also indicates that higher SWB can raise an individual's levels of creativity and problem-solving, encourage pro-social behaviour and increase engagement levels at work (Lyubomirsky et al., 2005) (see Chapter 2, Section 2.6.1).

Several studies have shown that a focus of coaching on greater goal striving and well-being reduced stress and depression, as well as tendencies toward perfectionism (Grant, 2001; 2003; 2008, Grant, Curtayne & Burton, 2009; Green, Oades, & Grant, 2006; Green, Grant & Rynsaardt, 2007; Gyllensten et al., 2010; Grbcic & Palmer, 2006; Kearns et al., 2007; 2008; Libri & Kemp, 2006). To explain the relationship between coaching and well-being, Grant (2009) theorises a number of possible causes: a) achieving a goal enhances well-being, especially if the goals are personally valued (Sheldon et al., 2001); b) social support affects a sense of independence, central to the coaching process (Grant, 2009); c) effects of self-acceptance, shown to be related to well-being in the workplace (Donaldson-Feilder & Bond, 2004); d) increased self-acceptance and self-confidence as a result of coaching (Grant, 2009).

The specific coaching method used in this study was the PRACTICE framework (Palmer, 2007), which builds on the theoretical foundation of problem-solving therapy (PST) (see Chapter 3). PST aims to 'reduce and prevent psychopathology and enhance positive well-being by helping individuals cope more effectively with stressful problems in living' (Bell & D'Zurilla, 2009, p. 348). PST was also found to be more effective when the programme included training in positive problem orientation (vs problem-solving skills only) covering the four major problem-solving skills: problem definition and formulation, generation of alternatives, decision-making, solution implementation and verification (Bell & D'Zurilla, 2009). Results from one meta-analysis found that PST was equally effective as other psychosocial treatments, and significantly more effective than no treatment and treatment as usual (Malouff et al., 2007).

The study was launched at about the same time as the global company had announced that 20,000, one fifth of the total number of employees, with 10,000 Swedish employees among them (nearly 33% of its employees in Sweden), were to be given their notice. This was due to the recession of 2007 to mid-2009, which has been described as more

extensive than any other since the Great Depression of the 1930s (Hout et al., 2011). Threat of job loss can have negative health impacts on employees (Cobb, 1974; Cottington et al., 1986; Kuhnert et al., 1989; Probst, 2000). Layoffs not only create stress for employees who lose their jobs, but for co-workers who remain in the organisation. One study performed on 510 'layoff survivors' in a technology company found that they reported higher levels of workload, leading to role overload which negatively affects work/life balance. A high workload can contribute to reduced job and life satisfaction due to reduced work/life balance as a mediating mechanism (Virick et al., 2007).

5.2 Method

This section details the methodology utilised in the study. It includes an explanation of the study's design, a description of the participants, the recruitment process, details of the procedure and the data collection methods employed.

5.2.1 Research aim and objective

The rationale for choosing a descriptive quasi-experimental design involved a randomisation design not being realisable, as well as the lack of a control group. The main research aim of the pilot study was, through observations and tests, to analyse patterns in the qualitative and quantitative data and determine if face-to-face (F2F) SFCBC in the form of the PF was a feasible method to use in a CHC setting. The research objective was to collect qualitative data through semi-structured interviews to explore participants' perceptions of SFCBC; to collect quantitative data investigating if SFCBC affected subjective well-being and signs of stress; and to test the working hypothesis that the PF would be a feasible method to utilise in increasing subjective well-being and reducing signs of stress among employees at work.

The study was ethically approved by the Psychology Research Ethics Committee at City, University of London, UK.

5.2.2 Research design

A descriptive quasi-experimental design was chosen, since it was not possible to randomise individuals into conditions or assign a control group. Comparisons were performed between two different time points, pre-coaching and three months post-coaching. After the intervention, a clinical assessment was carried out by a licensed psychologist, to assess symptoms determining if the coaching intervention could be

finalised and if any additional psychological interventions or support were needed. The data was collected through three self-report questionnaires: including the Personal Well-being Index (PWI), including a single question measurement of global life satisfaction (GLS) (International Well-being Group 2013) and the Stress scale (Lovibond & Lovibond, 1995), measuring the presence of stress. The independent variable (IV) was the intervention, the PRACTICE framework (PF). The PF was hypothesised to increase subjective well-being and reduce signs of stress among employees at work.

The dependent variables (DV) investigated were subjective well-being (SWB) and stress. The dependent variables were operationally defined as exposure to the SFCBC PF. One extraneous variable, 'economic recession', was identified during the study and assumed to increase stress/reduce subjective well-being in the sample due to extra role demands and fear of job loss.

A semi-structured interview was performed three months post-coaching and analysed using content analysis. Due to the economic crisis at the time of the study, additional control questions were added to the follow-up interview, exploring possible effects of the recession – for example, fear of job loss – on self-rated SWB and signs of stress.

5.2.3 Participants

The research group consisted of employees from one company worksite with approximately 3,000 employees in 2009. The worksite was based in Sweden, part of a global technology and manufacturing company which had, before the recession, approximately 100,000 employees worldwide. The participants represented employees (leaders and personnel) who were mostly civil engineers; the individuals were not known to the researcher, nor did they have any pre-knowledge of the study. The research group consisted of 16 participants: 10 males, six females. Eight of the participants were leaders; eight were employees. Fifteen participants were 30 years or older; one was younger than 30. Most participants had full-time employment.

5.2.4 Instruments

Subjective well-being (SWB) has traditionally been measured by a single question regarding how people rate their satisfaction with 'life as a whole' (Diener 1984). Satisfaction with one's life was later recognised as representing several different domains of life (Scollon et al. 2005). The Personal Well-being Index (PWI) (see Appendix M), contains both a Global Life Satisfaction (GLS) measure, with a single question, 'How satisfied are you with your life as a whole?' and seven domains (sub-

scales) representing the first-level deconstruction of ‘satisfaction with life as a whole’, which provide insights into the various aspects shaping the individuals SWB (Cummins 1996, 1997; International Well-being Group 2013). Answers are reported on an 11-point Likert type scale: where 10 represents ‘completely satisfied’, 5 ‘neutral’, and 0 ‘completely dissatisfied’.

The satisfaction scores from all domains are summed to produce a mean satisfaction value, known as the PWI score, which represents SWB. Data from the PWI can be analysed either in combination or as separate domains, via its normative range. The normative range estimate for the complete (all life domains) SWB lies between 73.7 and 76.7 points. The PWI has been translated and administered in various languages and contains seven items of satisfaction, each corresponding to a quality of life domain: standard of living, health, achieving in life, relationships, safety, community connectedness, future security. The PWI scale has demonstrated good psychometric performance in terms of reliability, validity and sensitivity (International Well-being Group, 2013; Lau et al., 2005).

Stress was measured by the sub-scale ‘Stress’, part of the DASS-21 questionnaire (Lovibond & Lovibond, 1995) (see Appendix L). DASS-21 represents a lighter version of the questionnaire, with seven items per scale originally consisting of 42 questions, measuring three emotional states: depression, anxiety, and stress. Different cut-off scores are provided, ranging from normal, mild, or moderate to severe and extremely severe, for the different sub-scales. Items refer to the past week, and scores range from 0 – ‘Did not apply to me at all’ - to 4, ‘Applied to me very much, or most of the time’. The Stress scale items measure tension, agitation, and negative affect. The scales are considered to approximate facets of diagnostic categories: Depression scale for mood disorders, Anxiety scale for panic disorder, and Stress scale for generalised anxiety disorder (GAD; Brown et al., 1997). The questionnaire usefully distinguishes between depression, physical arousal, psychological tension and agitation (Antony et al., 1998). The DASS questionnaire has also been found to be a valid and reliable measure of depression, anxiety and stress in a non-clinical sample of the UK population (Henry & Crawford, 2005).

Qualitative data was collected through semi-structured interviews performed 12 weeks after completion of the coaching programme by the researcher/coaching psychologist who was also responsible for the coaching intervention. The interview questions were designed to capture the participants’ perceptions and experiences of the coaching

method, by investigating possible effects on their working life or life in general. Additionally, the questionnaire contained four control questions, exploring potential long-lasting effects of the intervention, major negative/positive life/work life events, effects of the economic recession and occurrence of sick leave, either ongoing or during the three months leading up to the follow-up.

Table 5.1: Interview questions, three months' post-coaching.

Questions 1-2
1a) Has the coaching that you received affected your work life? Yes/No/Don't know 1b) If yes, can you describe how your work life has been affected?
2a) Are there any other areas in your life that have been affected by the coaching you received? Yes/No/Don't know 2b) If yes, can you describe how your life has been affected?
Control questions 3-6
3a) Has the effect of the coaching you received lasted? Yes/No/Don't know 3b) If yes, in what way do you notice the effects?
4a) Has anything happened that strongly affected you (positive/negative) for the past three months? Yes/No/Don't know 4b) If yes, what happened that affected you?
5a) Have you been affected by the current economic situation in the company, job loss etc.? Yes/No/Don't know 5b) If yes, can you describe the effect?
6a) Have you been on sick leave due to stress after the SFCBC? Yes/No/ Don't know 6b) If yes, can you describe how long?

5.2.5 Intervention delivery

The PRACTICE (Palmer, 2007) model was chosen to enable an evidence-based exploration of coaching methods and possible effects. The PRACTICE model (see Chapter 3) builds on the theoretical foundation of problem-solving therapy. The PRACTICE framework consists of seven steps built with a clear structure, with specified questions and goal rating scales to assess goal achievement. The structure and process were thought to enable a more controlled and verifiable coaching process suitable for research.

The 'P' in the model can represent a variety of different items which the problem solver may wish to tackle; for example, 'Problem identification', 'Performance-related issue' or 'Preferred outcome'. The 'R' represents 'Realistic, relevant goals'; the 'A' represents 'Alternative solution(s) generated'. 'C' stands for 'Consideration of the consequences'; 'T' is 'Target the most feasible solution(s)', as not all immediate solutions are easy to implement. The 'I' and the 'C' are one step combined and represent 'Implementation of the Chosen solution(s)'. Finally, 'E' is for 'Evaluation'.

Inherent in the PRACTICE approach is the creation of a positive problem orientation: a) appraise a problem as a 'challenge' or opportunity; b) problems can be solved; c) believe in one's own ability to solve problems; d) recognise and accept that effective problem-solving takes time and effort (Bell & D'Zurilla, 2009).

The SFCBC was delivered face to face (F2F) in a setting involving a coaching psychologist and a coachee, meeting in one location for 45 minutes to one hour; additional sessions were booked after each session until the coaching was finalised. The coaching intervention was considered finalised when the participant's goals were reached/solutions had been implemented, and reactions of stress had diminished. The coaching sessions followed the PRACTICE structure; between sessions, the participant worked on implementing different solutions, with evaluations performed at the next session. Solutions and implementations, obstacles and emotional responses were further explored during the sessions, as well as new or adapted solutions/cognitive behavioural aspects based on experiences from the coachee.

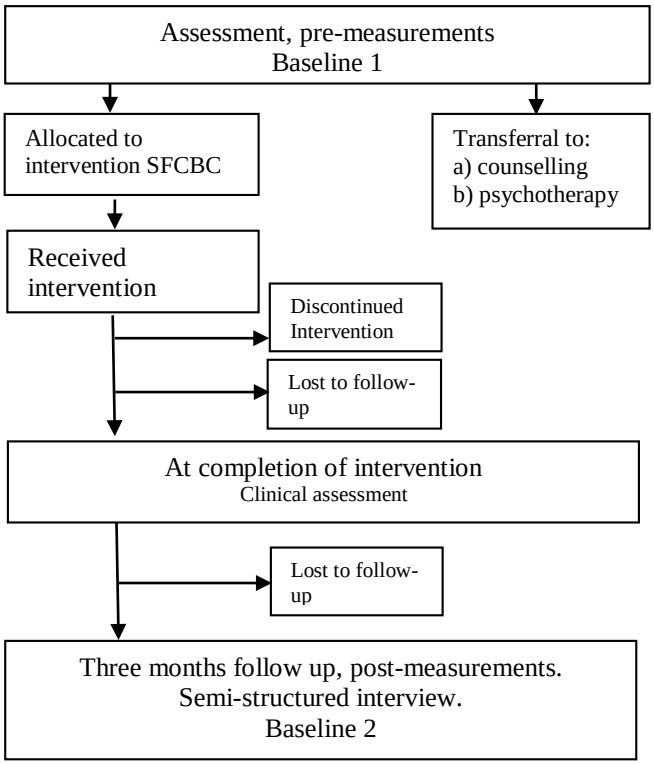
5.2.6 Procedure

The study utilised opportunity sampling: participants were approached when an employee contacted the company health care unit seeking assistance for stress reactions. Participants were first assessed by a licensed psychologist to determine if the issues experienced were work-related, along with the severity of the symptoms. After the initial assessment, participants were informed about the study details including ethics, data collection and the process of the coaching sessions, and received: a) an explanatory document detailing the research; b) a consent form for them to sign, agreeing to their data being processed. These documents more specifically informed them on the aim of the study, explained the process of the coaching intervention (number of coaching sessions, time for each session), that the data was anonymised and confidential, and that participation was voluntary: they could withdraw at any stage of the study without being penalised or disadvantaged in any way (see Appendix H).

At the next meeting, when the participants had decided if they wanted to join the study, if they had agreed, the consent form was signed. If not, the participants received counselling. Participants who experienced symptoms which were not work-related or/and experienced high levels of stress were transferred to primary care for psychotherapy or counselling, which was the standard procedure already in place at the health care unit. In the next step, the paper and pen questionnaires were administered as

a baseline time point one (Tp1) assessment, and the SFCBC intervention commenced (see Figure 5.1).

Figure 5.1: Study Procedure.



The semi-structured interview, lasting for 45 minutes to one hour, was performed three months post-coaching by the researcher and licensed psychologist. The data from the interview was written down manually by the researcher and later transcribed into a Word document.

5.2.6.1 Coach

The SFCBC was provided free to the coached participants and the organisation. Although the health care unit was a separate health care organisation, it operated as a 'built in' unit, part of the company with its own budget, which did not sell its services. The psychologist had both a central and multiple roles in the research process, both as a researcher collecting and analysing data and a coaching psychologist performing the coaching. Additionally, the psychologist had been working in the health care organisation for more than ten years, was relatively well-known there, and knew the organisation well too. The psychologist's office was situated a few minutes' walk from the participating organisation and was easily accessible. The psychologist was, at the time of the study, working in health care part time; psychological interventions were

freely available for the employees and organisation. Following the PRACTICE framework steps and questions, the SFCBC was practised by a licensed psychologist with a Master of Science degree in psychology; and qualified coaching psychologists with a Certificate in Psychological Coaching who had undertaken appropriate training and supervised practice in coaching psychology. The psychologist was a member of both the Swedish Psychological Association (SPA) and British Psychological Society (BPS) and followed the Professional Ethics Principles for psychologists in the Nordic countries (SPA, 1998) and Code of Ethics and Conduct (BPS, 2018).

5.2.7 Research ethics

To ensure confidentiality, codes and numbers were used in SPSS 25, documents and questionnaires, maintaining privacy of the participants. The researcher and research team at City, University of London, UK, were the only ones with access to the code key for the records. The data was not shared with any other organisation. The research data was kept in a locked safe, surrounded by an office alarm. Participants were also informed that their participation was voluntary, and they could withdraw at any stage of the project without being penalised or disadvantaged in any way. Contact information was also provided to representatives at the university and within the participating organisation if the participants had any complaints or concerns regarding the study. Consent forms and information sheets (see Appendix H) were written in Swedish.

5.2.8 Translations

The company language in the participating organisation was English, which is the second language in Sweden, taught in schools from third grade (9 years of age) onwards. The questionnaires were written in their original English language, but the researcher was available for support with translations when needed.

5.3 Data Analysis

Descriptive statistics and a combination of quantitative and qualitative analysis were performed in order to investigate the working hypothesis.

5.3.1 Quantitative data analysis

A repeated measures design with measures at two time points, pre and three months' post- coaching was used (see Figure 5.1). The focus of the pilot study was to explore the results to form a hypothesis, not test a hypothesis. The study design, questionnaires and experiences from the participants were investigated in order to better understand the

process and which factors needed to be redesigned, removed or adapted. The rationale for using a two-time point measurement design as opposed to three (prior, at completion and three months' post-coaching), was to avoid overloading participants with measurements and taking up more of both their and the company's time.

A clinical assessment was performed by a psychologist when the intervention was completed, clinically safeguarding that the coaching could be finalised and no other intervention was needed. It was also considered that the data collected after three months would be sufficient to analyse possible effects and feasibility of the intervention. However, the decision to exclude one additional measurement after completion could affect the validity of the data collected and affect the power of the statistical analysis. As the study was launched at a time of recession, the confounding variable was assumed to affect the sample. After the preliminary data management, both parametric and non-parametric tests were excluded, mainly due to the extraneous variable and the insufficient design (with only two measurements). Consequently, the quantitative data were reported as descriptive statistics.

5.3.2 Qualitative data analysis

Another aim of the pilot study was to increase understanding if the cognitive and behavioural elements, theoretically underlining SFCBC, were found to be meaningful and helpful, and collect data with which to build a hypothesis for future research. How the participants perceived the method and their experiences of possible effects were collected through a semi-structured interview (see Table 5.1), measuring and observing:

- Intervention duration
- Cognitive behavioural effects
- Long term intervention effects

Additional interview questions were provided in an effort to increase control over the 'economic recession' factor.

5.3.2.1 Content analysis

A deductive approach was chosen, with pre-conceived codes or categories derived from prior relevant theory, research or literature (Cavanagh, 1997; Kondracki, Wellman, & Amundson, 2002). A deductive approach can be useful when the aim is to test a previous theory in a different situation (Hsieh & Shannon, 2005; Elo & Kyngäs, 2008). Qualitative content analysis can be referred to as 'a research method for subjective

interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns' (Hsieh & Shannon, 2005, p. 1278). The rationale for choosing content analysis instead of, for example, thematic analysis, was to 'systematically describe the meaning' of materials in a certain respect that the researcher specified from the predefined research questions (Schreier, 2012, p. 3) and theory. However, underlying data can be lost using content analysis (CA) compared to thematic analysis, as CA is less open to exploration of content that goes beyond the pre-defined questions, questions that can be viewed as categories for coding (Rennie, 1998), and exploration of themes that occur outside the defined codes. Thematic analysis, on the other hand, could limit interpretive power if it excludes the theoretical framework (Braun & Clark, 2006).

The deductive process of category development includes a) formulation of the research question; b) theoretical-based definitions of categories; c) theoretical-based formulation of coding rules; d) revision of categories; e) final working through of the text; f) interpretation of results. The codes, choices of central themes and conclusions were independently evaluated by an external academic. The data was handwritten into a protocol, then written into a text processing programme. The text was then coded with a code structure, aimed at understanding the experiences and cognitive behavioural effects of SFCBC method. Relevant key words were identified and organised into categories/code structure, using different colour markings to identify recurring and significant themes. Consistencies and connections between categories were analysed and discussed, eventually forming the basis of the narrative data analysis. Main features were described with citations from the underlying themes.

5.4 Results

The following section details the results obtained. Preliminary analyses are discussed first, before results from each of the study's research questions and working hypothesis are examined.

The study was performed in 2009, and 16 participants were initially recruited when actively seeking assistance for stress reaction at the CHC unit. The economic recession impacted on the study; originally planned statistical analysis was not performed due to the extraneous variable.

5.4.1 Intervention Fidelity

Due to the economic situation and stress reactions experienced by the participants, a psycho-educational element was included at the start of the intervention. This included information about stress reactions and how stress can affect both physical and psychological health. After this phase, the original parts/steps in the PF were initialised, and the coaching commenced.

5.4.2 Data Collection

The total sample (*n*=16) represents a small proportion of the employees in the participating global company. The sample consists of both leaders and employees employed in Sweden.

5.4.3 Preliminary Data Management

This section first contains a description of the complete dataset, followed by results of the data analysis conducted to address the different research objectives. The presentation of the data analysis and working hypothesis testing is divided into three main sections:

1) Quantitative results: stress and subjective well-being.
2) Qualitative results: perceptions of the PF and cognitive and behavioural effects.
3) Feasibility of the PF

5.4.4 Descriptive statistics

The research group consisted of 16 participants: 10 males and six females. Eight participants were leaders, eight were employees; 15 were 30 years or older, and one was younger than 30 (see Table 5.2). Five participants were transferred due to more severe symptoms and offered psychotherapy or counselling. Another sub-group who were experiencing stress symptoms close to the cut-off score in the Stress scale, even though not clinically depressed or suffering from anxiety-related disorders, received more coaching sessions than participants with fewer symptoms, resulting in a median of 4.6 coaching sessions received.

Table 5.2: Descriptive statistics for sample characteristics

Variable	Frequency	Percent
Gender		
Male	10	62.5
Female	6	37.5

Role		
Leader	8	50
Employee	8	50
Age		
> 30 years	15	93.7
< 30 years	1	6.3

Note: *N*=16

5.5 Quantitative results

Normality was assessed by conducting Shapiro-Wilk tests on the dependent variable within the experimental group. These tests revealed that normality was not met for all dependent variables (*p*-values < .05); and on further inspection, was non-symmetrical in some cases, excluding the use of the non-parametric Wilcoxon's Signed-Ranks Test. Normality tests showed data from the Stress scale: PWI was distributed within the acceptable range for skewness and kurtosis +1.5 to -1.5 (Tabachnick & Fidell, 2013). Data from the GLS failed to meet this assumption. Outliers among the dependent variables were assessed using standardised values; no outliers were detected in the sample. Where standardised values were greater than 3.29 or less than -3.29, these can be considered as outliers (Tabachnick and Fidell, 2013). Preliminary data management excluded the most commonly used parametric and non-parametric tests. To correct for the issues detected, data transformation was considered; but since the sample was hypothesised to be affected by a confounding variable, the qualitative results were only reported as descriptive statistics.

The results indicated that stress post-test scores (n = 15, M = 9.2, SD=6.1) were higher than pre-test scores (n = 16, M = 26, SD=9.9); and SWB (PWI) post-test scores (n = 15, M = 75.7, SD=8.93) were higher than pre-test scores (n = 16, M = 59.8, SD=16.2). Satisfaction with life as a whole (global life satisfaction) scores increased three months post-coaching (n = 16, M = 72.7, SD=16.7), compared to pre-coaching (n = 15, M = 58.4, SD=20.5).

Table 5.3: Pre- and post-coaching mean.

	Pre-coaching		Three months post-coaching	
Variable	*M*	*SD*	*M*	*SD*
Stress	26	9.9	9.2	6.1

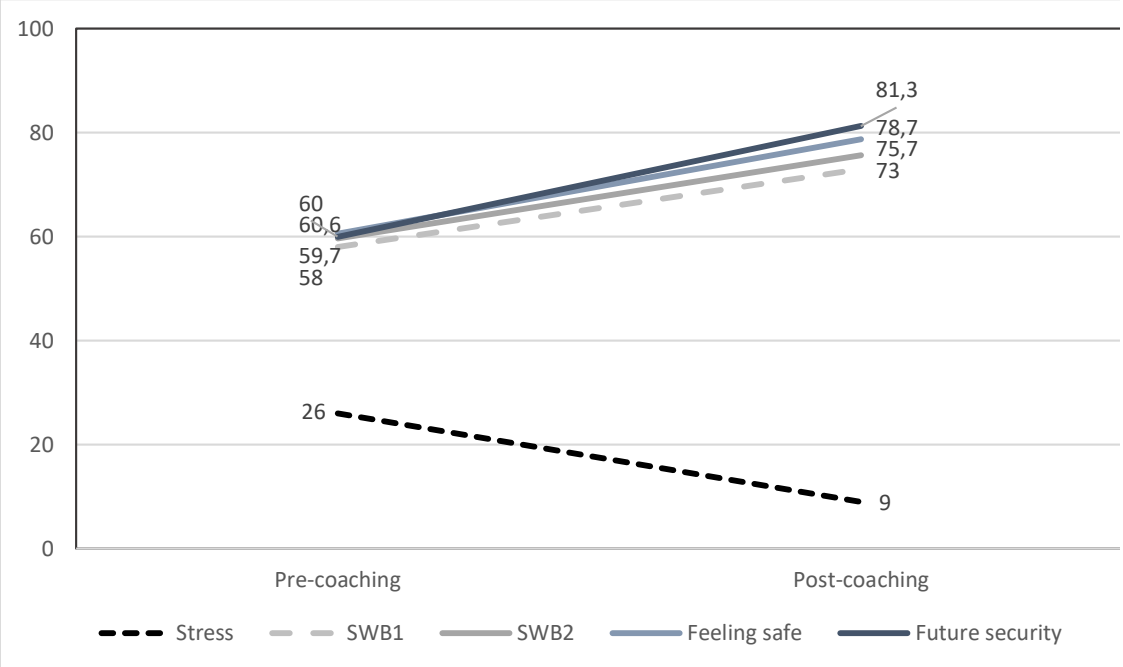
PWI	59.7	16.2	75.7	8.93
GLS	58.4	20.5	72.7	16.7

Note: Stress = DASS-21 stress scale; PWI =Personal Well-being Index; Global Life Satisfaction = GLS, N=15-16.

As a reference, the descriptive results from two sub-scales from the PWI scale was analysed separately, to control possible effects of the ongoing economic recession; and the scales, 'Feelings of Safety' (Q5) and 'Future Security' (Q7), were hypothesised to be more sensitive to organisational changes. Q5: Feelings of safety post-test scores (n = 15, M = 81.3, SD=10.6) were higher than pre-test scores (n = 16, M = 60.6, SD=23.0). Q7: Future security post-test scores (n = 15, M = 78.7 SD=6.4) were higher than pre-test scores (n = 16, M = 60,0, SD=20.0).

Figure 5.2 presents a comparison between mean scores from all scales, including sub-scale five and seven from the PWI. The comparison indicates a connection between stress and SWB scores; the higher Stress Mean value, the lower the SWB Mean score. Additionally, sub-scale five and seven show higher post-test scores then the total score of the PWI scale, which could suggest that that the economic recession did impact the results from the SWB and stress scales.

Figure 5.2: Comparison of Mean Stress and SWB scores, pre- and post-coaching.



Note: Stress = DASS-21, Subscale Stress; SWB1 = Satisfaction with Life as a Whole, SWB2 = Personal Well-being Index (PWI) total score, Feeling Safe = Subscale 5, PWI, Future Security Subscale 7, PWI.

5.6 Qualitative results

The semi-structured questionnaire was constructed to capture possible effects regarding cognitive and behavioural components of the method, and potential long-term effect. The questionnaire consisted of six structured questions, with two main questions and four control questions (see Table 5.4). If the answer was Yes to any of the structured questions, an open question was added in the interview. 15 of 16 participants participated in the semi-structured interview.

Table 5.4: Response rate structured interview questions 1-6, three months post-coaching.

Question	Response rate			
	Yes *n* / %	No *n* / %	Don't know *n* / %	Total
1. Has the coaching that you received affected your work life?	14 (93%)	-	1 (7%)	15
2. Are there any other areas in your life that have been affected by the coaching you received?	10 (67%)	3 (20%)	2 (13%)	15
3. Has the effect of the coaching you received lasted?	15 (100%)	-	-	15
4. Has something happened that largely affected you (positive/negative) for the past three months?	3 (21%)	11 (79%)	-	14
5. Have you been affected by the current economic situation in the company, job loss etc?	1 (7%)	14 (93%)	-	15
6. Have you been on sick leave due to stress after the intervention?	1 (7%)	14 (93%)	-	15

Note: *N*=14-15.

The descriptive statistics from the structured part of the questionnaire show that a majority of the group (93%) experienced an effect on their life/work life, while 67% reported that other areas of their life had been affected. All participants perceived that the intervention had lasting effects.

The interview data was organised in a code structure based on recurring and significant themes founded on cognitive and behaviour aspects (see coding protocol in Appendix K). Two main categories were identified describing the effects of the intervention pertaining to a) work content and b) work context (see Table 5.5):

Table 5.5: Main themes from time point two follow-up interview

Question	Main themes
Q1. Has the coaching that you received affected your work life?	**Cognitive**: a) Increased awareness, b) Reflective thinking, c) Thought patterns. **Behavioural**: a) Changed behaviour, b) Demands on oneself/view on work demands, c) Communication style.

Q2. Are there any other areas in your life that have been affected by the coaching you received?	**Cognitive**: Thought patterns. **Behavioural**: a) Feeling calmer, b) Less worry, c) Improved self-confidence, d) Demands on oneself/view on work demands, e) Personal relationships improved.
Q3. Has the effect of the coaching you received lasted and in what way do you notice the effects?	**Cognitive**: a) Making other choices/decisions. **Behavioural**: a) Self-confidence b) Demands on oneself (internal)/views on work demands (external).
Q4. Has something happened that largely affected you (positive/negative) for the past 3 months?	Three participants mentioned: change of role to a management position, becoming a father, new relationship, a new manager that supported the participant in a better way.
Q5. Have you been affected by the current economic situation in the company, job loss etc?	At the time of the follow up interview, it seems like the effects of the economic crisis had become less intrusive, compared to post-coaching. Even though some participants mentioned other employees that have lost their job and how that affected them emotionally.
Q6. Have you been on sick leave due to stress after the intervention?	One participant reports going on sick leave for stress reactions for a shorter period.

Question One: the descriptive data shows that 93% of the group perceived that SFCBC affected their life or work life. The most frequently mentioned themes were:

- Cognitive effects: increased awareness of thought patterns, using more reflective thinking in connection to the work content and context to cope with or handle different demands in the work environment. 'Gave me a chance to reflect over things, and the conversation is more about a conversation with myself'; 'Generally, more careful putting demands on myself'; or 'Before the coaching I had high demands on myself. I saw it as a failure if I could not deliver in time, but I have limits as everyone else, so now I don't think that way'.
- Behavioural effects mentioned included: changed behaviour in different situations: for example, how they viewed demands put on themselves and by others. And moreover, how they communicated with their colleagues: 'I am clearer in my communication and have removed the stress factor. Listening more to what I want myself'.

Question Two: investigated if the SFCBC had affected any other area of the participants' lives. 67% of the group responded 'Yes', and most frequently mentioned behavioural and emotional changes.

- Cognitive effects: changed thought patterns.

- Behavioural and emotional effects: feeling calmer and experiencing less worrying. Improved self-confidence, decreased demands on oneself and changed perception on work demands. Improved personal relationships.

Question Three: explored if the effects of the intervention had lasted. All participants perceived a long-term effect of the intervention and specifically notice this by continuously:

- Cognitive: making other choices and decisions.
- Behavioural: a) upholding self-confidence b) placing more realistic demands on oneself (internal) and changed perceptions of work demands (external).

Control Questions Four - Six: The results show that most participants (79%) did not experience any major life event that would impact them negatively or positively during the time leading up to the three months post-coaching interview, re-measurements of SWB and stress reactions. However, three participants mentioned a change of role to a management position, becoming a father, a new relationship, and a new manager who supported them in a better way. At the time of the follow-up interview, the effects of the economic crisis had become less intrusive, compared to post-coaching: even though some participants mentioned other employees/colleagues who had lost their job, and how that affected them emotionally. One person also mentioned being on sick leave for a period of time for stress-related symptoms.

5.7 Discussion

Interventions in a company health care unit usually focus on the relationship between employees' subjective well-being, stress reactions and the impact of work factors, such as demands in their working role or the effect of organisational changes. One underlying aim of the study was to explore if the SFCBC could act as a proactive intervention. This can be defined as an intervention based on previous experience or scientific findings which aims to prevent problems or issues from occurring in an organisation, a group or among individuals.

In the context of this study, the PF was hypothesised to act in a proactive manner, assisting primarily with identifying areas in the working environment and interactions with cognitive and behavioural components that could pose a risk to subjective well-being. The PF, which includes a seven-stepped structure, was hypothesised to facilitate a) the process to identify issues (sources of stress) and b) to find solutions to those

issues. Enabling the construction of goals and goal attainment through the coaching process and structure was hypothesised to increase SWB and reduce stress. The quantitative results and descriptive statistics indicated that both SWB and stress scores were positively affected three months post-coaching; but it was not possible to convincingly demonstrate a causal link between the quantitative intervention condition and observed outcomes, due to the extraneous variable. Considering the economic situation, it is reasonable to assume that both SWB and stress scores at timepoint one and two could reflect the impact of the economic recession on the employees: increasing fear of job loss and extra demands experienced by the 'survivors' in the organisation (Virick et al., 2007). At time point two, it seems as though the effect had dissipated, according to the interview data.

Comparison of mean scores seems to indicate a connection between stress and SWB scores: the higher the Stress Mean value (high stress), the lower the SWB Mean score (see Figure 5.2). Additionally, the results from two specific sub-scales from PWI were analysed separately, to control for possible effects of the ongoing economic recession; the scales, 'Feelings of Safety' and 'Future Security', were hypothesised to be more sensitive to organisational changes. Both scales show a higher post-test score then the total score of the PWI scale. This adds further evidence to the conclusion that the economic recession did impact participants' feelings of safety and future security: manifesting, it is assumed, as stress reactions and a lower SWB score at the start of the intervention.

Apart from the economic factors and confounding effects on the quantitative results, the coaching intervention could presumably also have acted as a mediator at a time of organisational change, similar to what has been pointed out by Grant et al., (2009) "Short-term coaching can be effective in helping people deal with the uncertainty and challenges inherent in organisational change" (p.1).

The descriptive statistics from the structured part of the interview questionnaires shows that a majority of the group (88%) experienced an effect on their work life, while 63% reported that other areas of their life had been affected after the intervention too. Most (94%) of the participants perceived that the SFCBC had lasting effects. To further theorise on the reason for the continued effect of the intervention reported in the interview, the different theoretical building blocks of the PF: including a goal attainment process, cognitive behavioural techniques, and a solution-focused could have been helpful in the behavioural change. The qualitative results indicate that the PF could

support the participants by affecting a change in the cognitive behavioural appraisal of perceived issues at work, and facilitating the process when attempting to make changes. Goal attainment has repeatedly been linked to a positive effect on subjective well-being (Brunstein, 1993; Elliot et al., 1997; Sheldon & Kasser, 1998; Sheldon & Elliot, 1999; Sheldon et al., 2002). The use of a goal attainment process in coaching could also facilitate exploration concerning the relationships between thoughts, feelings, behaviour and the environment (Grant, 2003), which could lead to increased awareness about issues and effects, and how to change the situation.

Results from the content analysis suggest that SFCBC affected cognitive and behavioural aspects, such as decision-making and awareness of the relationship between subjective well-being, stress, and the perception of internal and external demands at work. This could mean that the concept and method tested had similar effects identified in previous research, concerning problem-solving methods, like problem-solving therapy and possibly acting as a mediator between perceived stressful work/life events and well-being (D'Zurilla & Nezu, 1999, 2007). The results showed that the participants focused mainly on how to change behaviour and thinking processes to address issues. The solution-focused questions and structure of the PRACTICE model may also have helped participants focus more easily on moving forward with finding solutions then getting stuck in problem analysis. Similar to Grant (2012b) and Neipp et al., (2016) findings, that the SF group had a significantly greater increase in goal approach compared to the problem-focused group and increased positive affect, decreased negative affect, and increased self-efficacy.

The pilot study represented Phase One of a longer-term research process to test proof of concept: namely, if the cognitive behavioural theory underlining the PF had practical potential in the specific study context. The overall aim was to construct a hypothesis for future research, and several factors were therefore explored: intervention feasibility, study context, participants' perceptions of the intervention, duration, long term effects, the design sequences and possible effects of the intervention on stress reactions and subjective well-being. The identification of intervention targets and components indicated that employees at work perceived the intervention as helpful in its current form and that the method may affect cognitive behavioural components which could assist in handling the sources of stress.

The main issues detected that needed refinement concerned the frequency of the time point measurements. When using sequential measurements trying to capture the effects

of interventions, an additional time point could be added straight after the coaching was completed. In the case of this study, a re-measurement was performed only at 12 weeks post-coaching due to economic reasons/concerns, to avoid taking up too much of the employees' time during an economically challenging situation. In future research, it would be preferable to find another study context that could permit the recruitment of a control group, increasing the reliability and validity of the results.

5.8 Study limitations and implications

The study had several limitations. The population represented a small sample (n=16) of the total number of employees in the company, and the results may therefore not be generalizable. The sample was drawn using opportunity sampling; as such, the sample characteristics may not be representative and could be biased. Furthermore, the central role of the researcher generating the data can also make it difficult to replicate the study, as well as current conditions and interactions making it harder to generalise the results.

When relying on qualitative data, the major criticism concerns the validity and reliability of the data, due to its subjective nature. For example, a single context can be problematic to apply to other contexts and groups. The double role of the researcher, also coaching the participants, could have induced a demand effect: participants may have felt they had to report making progress and enhanced well-being, or that the intervention was helpful in the interview, in order to please the researcher and coaching psychologist. To enable the collection of data from an independent process in the future, the interview questions could be written in a questionnaire and sent to the participant post-coaching, which would also make it more time efficient for the researcher.

Although qualitative data is subjective in nature, it can provide the researcher with valuable information that quantitative measures cannot provide, especially when exploring methods which have never been utilised before in a certain context. In this study, no comparison was made between cognitive behavioural therapy, counselling and other SFCBC methods, as this lay outside its scope. Therefore, the results cannot be assumed to be more effective than other psychological interventions. Another limitation involved the non-longitudinal design; thus, the effects of the coaching interventions could not be re-assessed during a more extended period. The quantitative data were obtained in most parts by self-report questionnaires, which may also lead to method-variance.

5.9 Conclusion

The conclusions drawn from the qualitative results indicated that the PF could be used as a feasible proactive short-time intervention, with potential longer-term effects specifically affecting employee decision-making and awareness of the relationship between subjective well-being, stress, internal and external demands at work. Even though a relatively strong extraneous variable had confounding effects on the dependent variables (SWB/Stress), the overall results indicated that the method could be feasible in a work context and that a hypothesis could be constructed via the SFCBC PRACTICE framework.

Chapter 6: Psychological information communication technology and coaching methods

6.1 Introduction

6.1.1 Summary of study

An explorative mixed method design study was conducted to test the hypothesis stating that information communication technology combined with solution-focused cognitive behavioural coaching (SFCBC) in the form of a telephone and internet coaching program would enhance psychological and subjective well-being compared to the control, measured over time. Another aim was to pilot, and explore the effects of, the randomised design by analysing metadata from the study, and to test the feasibility of a self-coaching manual.

An internet-based solution-focused coaching program and a solution-focused cognitive behavioural coaching (SFCBC) method based on the PRACTICE framework (Palmer, 2007; 2011) were investigated. The study consisted of 37 participants randomly assigned to four research groups: telephone, internet program, self-coaching and control. It utilised a randomised design and measurements were performed at three time points: before the coaching intervention, at completion, and at three months post-coaching. Outcome measures were subjective and psychological (signs of stress, depression and anxiety) well-being.

Additionally, a semi-structured questionnaire collecting information regarding the participants' perception of the methods was used. The results were affected by attrition rates, which led to changes in statistical analysis and lowered the validity of the findings. Based on the qualitative data, telephone coaching seems to have been the most feasible method compared to the other applications. The results also showed that alterations in design had to be performed, primarily concerning the recruitment process and the design/construction of the applications.

6.1.2 Research background

Well-being and well-being strategies in the workplace were less discussed a decade or so ago. The practical relevance of investigating proactive methods like coaching coincided with participating organisations' increased focus on strengthening employee well-being and prevention of psychological ill-being. During the last decade, many

organisations have also included information communication technology (ICT), such as Skype, as work tools. SFCBC could potentially be of use in other forms than face-to-face (F2F) modality, and other contexts than a health care setting (see Chapter 5).

Psychological Information Communication Technology (PICT) refers to psychological methods combined with ICT; in other words, 'carrying technologies' for coaching. PICTs could be useful as proactive methods to sustain or enhance psychological and subjective well-being through advantages including accessibility, availability, lower cost, minimising travel times, and personnel being able to access services despite being in another location.

Although at the time of this study (2010-2011), PICT was a less researched field of coaching psychology, research in cognitive behavioural therapy (CBT) combined with ICT was showing effects equal to the F2F modality. PICT combined with CBT methods can be described as where the therapist has a number of virtual (phone or Skype) a) or/ in combination with F2F meetings, b) or/ in combination with self-assisted cognitive behavioural therapy software (Andrews et al., 2010). Barak et al. (2008) conducted a meta-analysis of 92 studies examining virtual psychotherapeutic interventions involving 9,764 clients, and concluded that the findings "provide strong support for the adoption of online psychological interventions as a legitimate therapeutic activity" (Barak et al., 2008, p. 1) (see Chapter 4).

The conclusions from the study performed in a health care setting (see Chapter 5) indicated that the PRACTICE framework could be utilised as a proactive short-time intervention, with long term cognitive and behavioural effects. This study aims to address issues detected in the previous one; the main arguments for the change in sample context and research design were to permit the recruitment of a control group – while recruiting a non-clinical population gave room for comparisons between different applications of solution-focused coaching methods not previously tested.

The study was ethically approved by the Psychology Research Ethics Committee at City, University of London.

6.2 Methods

The method section details the rationale for the methods and design utilised in the study. It includes an explanation of the design, a description of the participants, recruitment process, procedure employed and data collection methods.

6.2.1 Research aim and objectives

The main research aim was to test the hypothesis which stated that different applications of SF and SFCBC (telephone coaching, internet coaching program and self-coaching) would enhance psychological (e.g. signs of depression, anxiety and stress) (PWB) and subjective well-being (SWB), compared to the control measured over time; investigate participants' perceptions of the adapted and at the time, relatively new psychological information communication technology (PICT); and explore potential effects of the research design: specifically, the change of context and conditions in recruiting participants from a workplace setting, by investigating metadata.

6.2.2 Research design

The study was set up as a randomised, sequential, mixed between-group design, with three research groups: telephone coaching (TC), internet coaching program (ICP), self-coaching (SC); along with a control group. The design included quantitative measurements at three time points: pre-coaching, on completion, and three months post-coaching. When introducing a new design including a randomisation process, it was also important to further explore how the design would potentially affect the study sample. The rationale for including a mixed method design was to enable a broader range of research questions; generate more comprehensive results when exploring methods never previously tested; and complement the quantitative data, to further clarifying the findings from the different applications and methods. It was also to examine the potential developmental needs of the new applications – specifically, the manualised standalone version of the PRACTICE framework (PF) - to gather data for the future development process.

The data was collected through three self-report questionnaires: The Personal Well-being Index (PWI), including a single question measurement of global life satisfaction (GLS) (International Wellbeing Group 2013); and the Stress scale (Lovibond & Lovibond, 1995), measuring the presence of stress.

The independent variable (IV) was the intervention, featuring a) a solution-focused computerised (SFC) coaching program; and b) the PRACTICE framework (PF). The coaching interventions were hypothesised to increase subjective well-being and reduce signs of stress among employees at work.

The dependent variables (DV) investigated were subjective well-being (SWB) and psychological well-being (PWB) (signs of depression, anxiety and stress). The

dependent variables SWB and PWB were operationally defined as exposure to the SFC and SFCBC. A semi-structured questionnaire was sent out to the participants at timepoint two, after the coaching interventions. The content provided from the free text questions was initially planned to be analysed by content analysis, but the number of responses was fewer than planned and were over-represented by the telephone coaching group. The responses were therefore presented as raw data from the information provided (see Appendix A-B).

6.2.3 Participants

The research group consisted of leaders and employees (technical project leaders and civil engineers) from one worksite in Sweden, part of a global technology and manufacturing company based there. 37 participants were recruited, and 19 (51%) individuals participated by answering the questionnaires at time point 2. Among them were 10 males and nine females, mostly (73.3%) between ages 31-50. Ten were civil engineer employees (66.7%); nine were leaders.

6.2.4 Instruments

The quantitative data was collected by a) the Personal Well-being Index (PWI) (International Wellbeing Group 2013) (see Appendix M); b) Depression, Anxiety and Stress Scale (see Appendix L) (DASS-21) (Lovibond & Lovibond, 1995).

The PWI contains both a Global Life Satisfaction (GLS) measure with a single question, 'How satisfied are you with your life as a whole?' and seven domains (sub-scales) representing the first-level deconstruction of 'satisfaction with life as a whole', which provide insights into the various aspects that shape the individual's SWB (Cummins 1996, 1997; International Wellbeing Group 2013). Answers are reported on an 11-point Likert type scale: where 10 represents 'completely satisfied', 5 'neutral', and 0 'completely dissatisfied'. The satisfaction scores from all domains are summed to produce a mean satisfaction value, known as the PWI score, which represents SWB. Data from the PWI can be analysed either in combination or as separate domains through its normative range. The normative range estimate for the complete (all life domains) SWB lies between 73.7 and 76.7 points.

The PWI has been translated and administered in various languages and contains seven items of satisfaction, each corresponding to a quality of life domain: standard of living, health, achieving in life, relationships, safety, community connectedness, and future security. The scale has demonstrated good psychometric performance in terms of

reliability, validity and sensitivity (International Wellbeing Group, 2013; Lau et al., 2005).

Depression, Anxiety and Stress were measured by DASS-21 (Lovibond & Lovibond, 1995). DASS-21 represents a shorter version of the questionnaire, with seven items per scale measuring three emotional states: depression, anxiety and stress. Different cut-off scores are provided, ranging from normal, mild, moderate to severe and extremely severe, for the different sub-scales. Items refer to the past week, and scores range from 0, 'Did not apply to me at all', to 4, 'Applied to me very much, or most of the time'. The scales are considered to approximate facets of diagnostic categories: Depression scale for mood disorders, Anxiety scale for panic disorder, and Stress scale for generalised anxiety disorder (GAD; Brown et al., 1997).

The questionnaire has been found to distinguish well between depression, physical arousal, psychological tension and agitation. Internal consistency and concurrent validity of the DASS and DASS–21 were in acceptable to excellent ranges (Antony et al., 1998). The questionnaire was found to be a valid and reliable measure of depression, anxiety and stress in a non-clinical sample of the UK population (Henry & Crawford, 2005).

Qualitative data were collected through a semi-structured feedback questionnaire consisting of five questions and two control questions. The telephone coaching (TC) was most similar to the F2F coaching previously used in Study One, as it involved a coach and coachee using the telephone as carrier technology for the coaching conversation. In comparison, the internet program coaching (IPC) and self-coaching (SC) methods differed: these only involved the participant and interactions with the material or program, and no coach was involved in the coaching process. The five main questions were designed to capture 1) possible intervention effects: a) thinking processes b) problem-solving and planning; 2) experiences of the coaching methods used: if the intervention was helpful, along with suggestions for improvements.

The control questions for the TC group explored potential advantages or disadvantages of the method, and if participants would have preferred face-to-face coaching if given a choice. It was essential to understand participants' perceptions when excluding visual communication (audio only): to enable an analysis of the method's feasibility when combining electronic elements with PF coaching.

The internet IPC and SC group control questions focused on if they actively used the methods or not - as the coachees were not in contact with a coaching psychologist regularly - and the reasons for using the intervention or not. The responses from the participants in the questionnaire were translated from Swedish to English by the researcher.

Table 6.1: Feedback questionnaire.

Question 1: Are you thinking differently regarding specific issues as a result of the coaching? Yes/No/Do not know. Please describe.
Question 2: After the coaching intervention do you perceive any difference regarding your ability to solve different issues? Yes/No/Do not know. Please describe.
Question 3. Is there anything you have done or planned differently as a result of the coaching received? Yes/No/Do not know. Please describe.
Question 4. Were there parts of the coaching that you did not think were helpful? Do you have any suggestions for improvements? Yes/No/Do not know. Please describe.
Question 5. Would you suggest coaching to a friend or a colleague based on your experiences after this intervention? Yes/No/Do not know.
Control questions telephone group
a) Would you rather have received face-to-face coaching instead of receiving it through the telephone? Yes/No/Do not know. Please describe.
b) Is there any potential a) advantage, b) disadvantage to telephone coaching that you would like to share? Please describe.
Control questions Internet program/self-coaching
a) If you used the internet program/ self-coaching, what made you decide to try/use it?
b) If you did not use the program, what made you decide not to use it?

6.2.5 Intervention delivery

The PRACTICE framework builds on a problem-solving approach that guides the coaching process forward. Initially, it was viewed as a solution-seeking cognitive behavioural approach (Palmer, 2007a, b); but over time, the model was complemented with a solution-focused approach, integrating cognitive solution-focused strategies and techniques (Palmer, 2008; Williams, et al., 2011). This seven-step problem-solving model has been applied to the fields of counselling, psychotherapy, management, coaching and training (Palmer, 2007). The framework has also been adapted to different languages and cultures (Dias et al., 2011). The intervention, PRACTICE (see Chapter 3) was examined in Study One (see Chapter 5), indicating it could be utilised as a possible

proactive short-time intervention. The qualitative results suggested potential longer-term effects on decision-making and awareness concerning the relationship between subjective well-being, stress, internal and external demands at work.

Three different applications of SF and SFCBC were examined and compared: telephone coaching (TC), internet program coaching (IPC), and self-coaching (SF). The adapted coaching applications were combined with both self-help elements. Self-help was defined as providing ways (through a coaching method) to help a person solve a problem, and learn a skill by themselves (Cambridge Dictionary Online, 2019) through electronic or digital elements (see Table 6.2):

1) Electronic elements: a) telephone: digitally assisted coaching, involving a coach and coachee; b) internet program coaching, involving the coachee and a software program, via the act of self-help.

2) Self-help or self-assisted coaching. An adapted form of the PRACTICE framework, in the form of self-help or self-assisted coaching, involving the coachee and a 'paper-and-pen' guide.

Table 6.2: Components / coaching application.

Method	Electronic component	PRACTICE / SFCBC	Self-help / self- assisted	SF coaching
TC	Yes			
SF	No			
IPC	Yes			

Note: Telephone Coaching (TC), Internet Program Coaching (IPC) Self-Coaching (SF).

6.2.6 Intervention groups

1) TC group: the telephone carried technology for coaching, where the coach was responsible for creating a structure, booking sessions, and partaking in the dialogue towards creating solutions for the coachee. The method was based on the same set of questions and process as the adapted PRACTICE self-coaching method.

2) IPC: a solution-focused program, where the coachee logged into a website/program; and through a set of solution-focused questions, with room for written responses, guided the participant through a goal-oriented solution-focused coaching process. No information was saved in the program after the sessions. However, participants could, and were encouraged to, save a copy of the summery after each coaching session. They were asked to keep a record on how many times they used the program during the intervention.

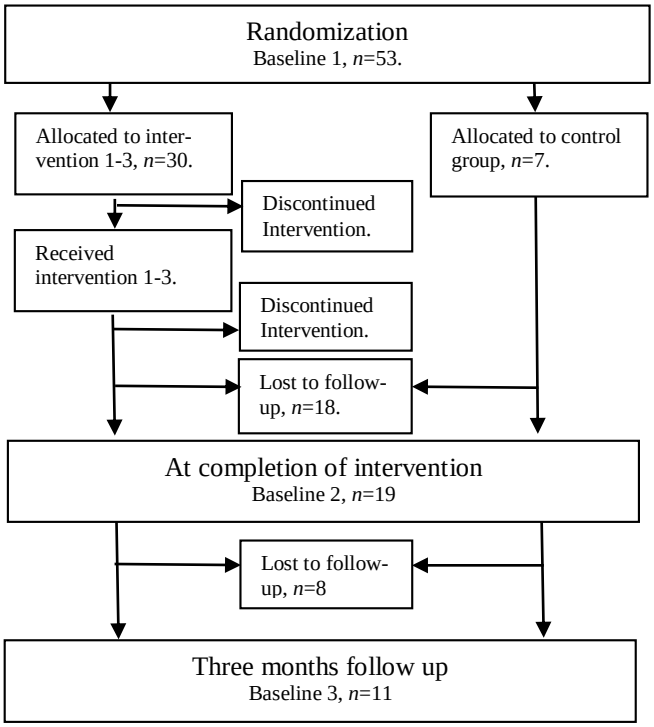
3) SF: an adapted form of the PRACTICE self-coaching framework (Palmer, 2011). Consisting of a five-page 'paper and pen version' with room for written answers (see Chapter 3, Table 3.1). An example of how to use the self-coaching material was also provided to the participants before the coaching commenced.

6.2.7 Recruitment

Information meetings were held with eight different teams, 97 individuals, and their leaders. Not all employees could be present during the information meeting, due to work-related travel or other reasons, so were contacted separately. At the information meeting, the study was explained; if an individual in the teams was experiencing symptoms of stress and low well-being, it was always possible to contact the health care unit for assistance, or the psychologist directly. The managers also informed them that the time needed to take part would be during working hours. After the team meeting, an e-mail was sent individually to each person regarding participation and if they wanted more information through the telephone or by meeting face-to-face with the researcher. If the team member responded, a paper letter was sent out to the participant with a) an explanatory document detailing the research; b) a consent form to sign, agreeing to their data being processed and returned by postal service. These documents more specifically informed them of the aim of the study, explained the process of the coaching intervention (number of coaching sessions, time for each session), that the data was anonymised and confidential, and that participation was voluntary. They could withdraw at any stage of the study without being penalised or disadvantaged in any way (see Appendix H).

An e-mail was also sent containing examples of areas common in coaching, to orientate the coachee before the coaching session. These included developmental areas in working role, needs and feelings concerning the work situation, balance between work and private life, relationships to other people, time management, change and its effects, support and areas connected to demands. This was added due to feedback from the information meeting. The method was new; some groups wanted more information on different subjects which could be addressed in a coaching session. The coachee was also asked to consider the surrounding environment, to minimise the chance of interruptions.

Figure 6.1: Study procedure



After signing the consent form (see Appendix H), eligible participants continued the registration process, followed by the baseline assessment. The randomisation process randomly allocated them into one of the three intervention groups and to the control condition. The researcher used a randomisation technique where number 1-4 (1. telephone, 2. internet program coaching, 3. self-coaching, 4. control) was written on a piece of paper, concealed in an envelope. One envelope was drawn and opened for each participant signing up for the study.

The intervention groups received three different modalities of solution-focused coaching. The participants used paper and pen questionnaires to rate SWB, stress, anxiety and depression, at the start, at completion, and three months' post-coaching. When the intervention was completed at timepoint 2 (Tp2), a letter was sent through the ordinary postal service containing questionnaires and a feedback questionnaire. Two reminders, two weeks apart, was sent out to non-responders. The control group did not receive any interventions; but answered the same questionnaires at the same time points, apart from the 'intervention feedback' questionnaire (see Figure 6.1).

The participants were informed about additional resources such as psychotherapy or counselling at the information meeting and in the letter explaining the study. Three participants agreeing to take part were transferred to other psychological interventions or already in counselling with a psychologist, so removed from the study. Other

employees who approached the psychologist after the information meeting, either by meeting face-to-face, via telephone or e-mail, were transferred to health care for additional assistance: but the number was not explicitly recorded, as they were not part of the study.

The SFCBC was provided free to the coached participants and the organisation. The psychologist had a central and multiple role in the research process, both as a researcher collecting and analysing data and a coaching psychologist performing the coaching. Additionally, the psychologist had been working in the health care organisation for more than ten years, was relatively well-known, and knew the organisation well. The psychologist's office was situated a few minutes' walk from the participating organisation and was easily accessible. The psychologist was working in health care part time; psychological interventions were freely available for the employees and organisation. The SFCBC (following the PRACTICE framework steps and questions) was practised by a licensed psychologist with a Master of Science degree in psychology; and qualified coaching psychologists, with a Certificate in Psychological Coaching, who had undertaken appropriate training and supervised practice in coaching psychology. The psychologist was a member of both the Swedish Psychological Association (SPA) and British Psychological Society (BPS) and followed the Professional Ethics Principles for psychologists in the Nordic countries (SPA, 1998) and Code of Ethics and Conduct (BPS, 2018).

6.2.8 Research ethics

To ensure confidentiality, codes and numbers were used in SPSS 25, documents and questionnaires: maintaining privacy of the participants. The researcher and research team at City, University of London UK were the only ones with access to the code key of the records. The data was not shared with any other organisation. The research data was kept in a locked safe, surrounded by an office alarm. The participants were also informed that participation was voluntary, and they could withdraw at any stage of the project without being penalised or disadvantaged in any way. Contact information was provided to representatives at the university and within the participating organisation if participants had any complaints or concerns regarding the study. Consent forms and information sheets (see Appendix H) were written in Swedish.

6.2.9 Translations

The company language in the participating organisation was English, the second language in Sweden, taught in schools from third grade (9 years old) and onwards. The questionnaires were written in their original English language, but the researcher was available for support with translations when needed.

6.2.10 Data analysis

The primary outcome measures for the study was the investigation into different applications of coaching and the potential effect on well-being, measured through psychological and subjective well-being. A repeated mixed-design analysis of variance was initially planned to be utilised with a design including 18 participants/group but due to attrition rates at time point two and three in all research groups, along with time restrictions in the research study, led to changes in design and methods for statistical analysis and the non-parametric test Wilcoxon Signed-Rank Test was utilised. The change in design included: removal of the control group and the third timepoint measurement. Additionally, the TC and IPC were combined into a new research group (n=12), and the SC group was removed from the quantitative analysis. The rationale for the combination of the TC and IPC groups was that both methods included an SF framework and were performed by or with the use of electronic carrier technologies. The reason for not including the SC group were high attrition rates and that the participants reported not using the program as often.

The content provided by the participants from the feedback questionnaire was initially planned to be analysed by content analysis. However, the number of responses were fewer than expected, and the TC group was over-represented in the sample. The results were instead presented as a summary of raw data and citations. Metadata, defined as a set of data that describes and gives information about other data (Oxford English Dictionary Online, 2019) - in other words, information about the data collection process itself - was collected and analysed to examine the potential effects of the research design.

6.3 Results

Post-hoc findings led to changes in the sequential mixed design; planned parametric tests could not be performed. The control, SC group, and Tp3 data collection point was removed due to attrition rates (see Figure 6.5 for sample characteristics). The post-hoc hypothesis examined if digital applications of SF and SFCBC would increase

psychological and subjective well-being, measured at the start and completion of the intervention. SPSS 25 was used to analyse the data.

This section first contains a description of the complete dataset at time point two, followed by a presentation of the results from the combined TC and IPC group. The results are divided into three main sections:

1) Psychological (signs of depression, anxiety and stress) and subjective well-being.
2) Participants' experiences and perceptions of the intervention.
3) Observations study design.

A total of 37 participants were recruited into four conditions. 19 (51%) of individuals participated in the study by answering the questionnaires at Tp2. The combined TC and IPC group consisted of 12 participants, the largest proportion among whom were male (*n*=7, 58.3%), between ages 31-50 (*n* = 8, 66.7%). A majority of participants were employees in the civil engineering profession (*n* = 8, 66.7%).

Table 6.3: Descriptive statistics for sample characteristics at time point 2, Gender, Age and Role.

Variable	Frequency	Per cent
Gender		
Male	7	58.3
Female	5	41.7
Role		
Leader	4	33.3
Employee	8	66.7
Age		
< 30 years	2	16.7
31 -50 years	8	66.7
> 51 years	2	16.7

Note: *n*=12

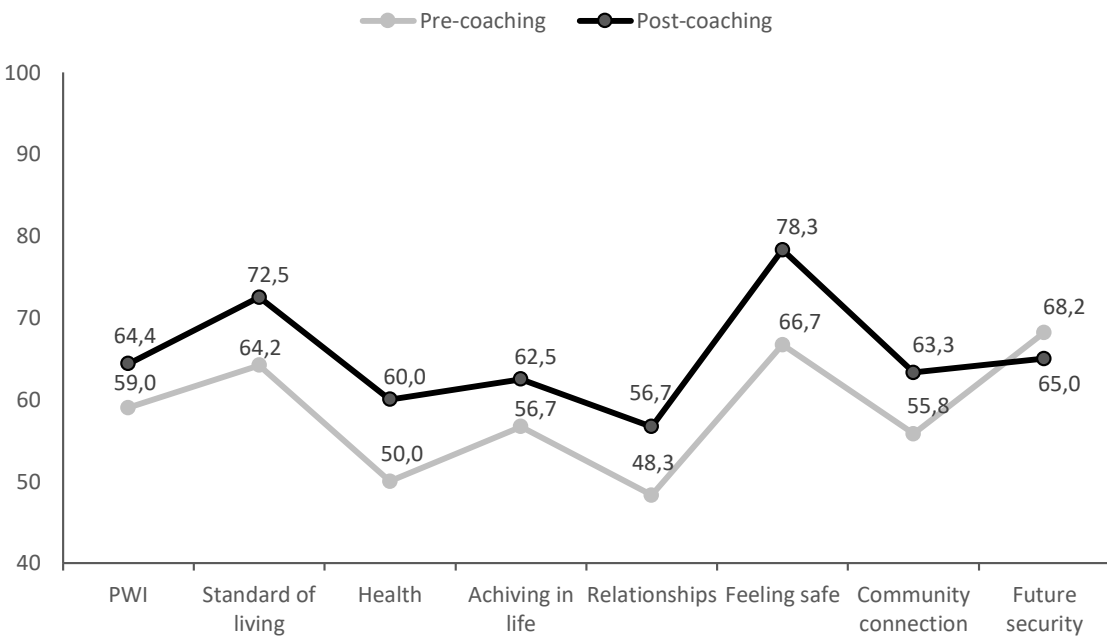
Table 6.4 presents the frequency of the two different coaching methods in the sample. TC represented 47% of the group; the IPC, 33%.

Table 6.4: Frequency coaching application.

Coaching intervention	Frequency	Per cent
Telephone	7	58%
Internet Program	5	42%
Total number	12	100%

The descriptive statistics for SWB measured by PWI shows post-scores (n = 12, M = 64.4 SD=12.6) were higher than pre-test scores (n = 12, M = 59.0, SD=12.6). The seven PWI sub-scales are presented as mean scores (see Figure 6.2).

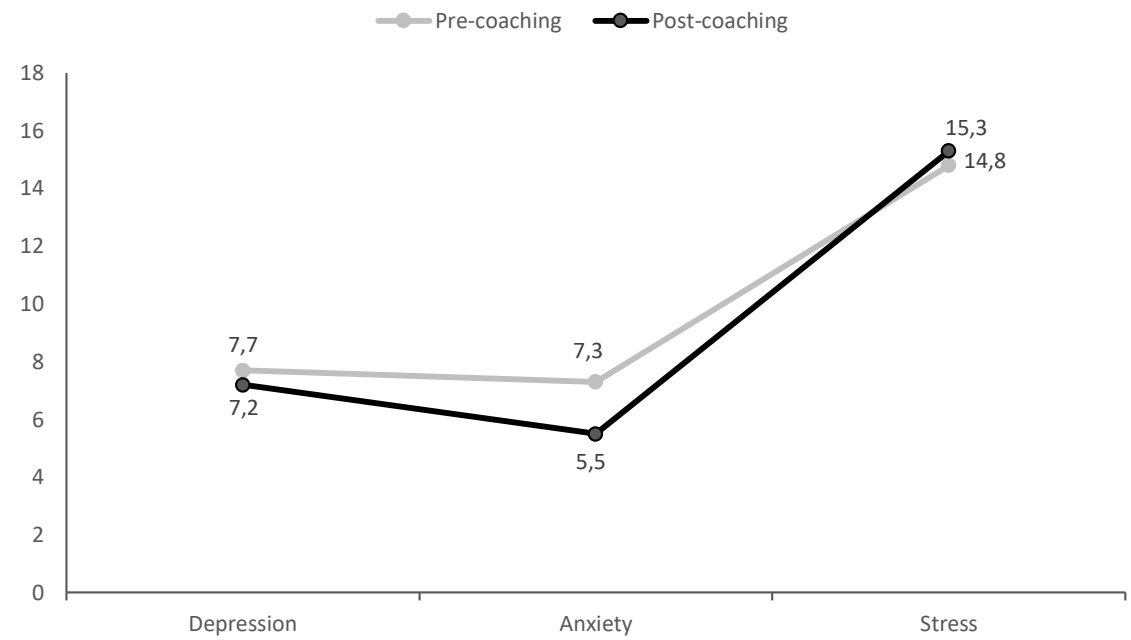
Figure 6.2: Descriptive Statistics PWI sub-scales 1-7, Pre and Post-coaching, TC and IPC group.



Note: PWI =Personal Wellbeing Index Main Score, PWI Subscales 1-7 = Standard of Living Health, Achieving in Life, Relationships, Feeling Safe, Community Connection, Future Security). *N* ranged from 11-12.

Figure 6.3 and Table 6.5 present the Mean for Depression, Anxiety and Stress scores (DASS-21). Scores were within the normal range apart from the stress post-score (mild) (DASS-21 range: normal, mild, moderate, severe, extremely severe) (Lovibond & Lovibond, 1995).

Figure 6.3: Descriptive Statistics, Depression, Anxiety and Stress sub-scales, pre and post-coaching.



Note: DASS-21 = Depression, Anxiety and Stress Scale. *N*=12

6.3.1 Analysis of psychological and subjective well-being, pre and post-coaching

Normality was assessed by conducting Shapiro-Wilk tests on the dependent variable within the experimental group. These tests revealed that normality was not met for all dependent variables (*p*-values < .05). Normality tests showed data from PWI; SLW was distributed within the acceptable range for skewness and kurtosis +1.5 to -1.5 (Tabachnick & Fidell, 2013). Not all dependent variables from DASS-21 were distributed within the acceptable range for skewness and kurtosis.

Outliers among the dependent variables were assessed using standardised values. No outliers were detected in the sample; standardised values greater than 3.29 or less than -3.29 can be considered as outliers (Tabachnick and Fidell, 2013). Wilcoxon Signed-Rank Test results indicated that SWB post-test scores (*n* = 12, *M* = 64.4, *SD*=12.6) were higher than pre-test scores (*n* = 12, *M* = 59.0, *SD*=12.6), *Z* = -2,090, p < .05. The Depression, Anxiety, Stress and SLW variables scores show *ns* results, pre and post-coaching (see Table 6.5).

Table 6.5: Results Wilcoxson Signed-Rank Test, pre and post-scores: Depression, Anxiety, Stress, SWB and GLS.

	Time 1			Time 2				
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*Z*	*p*
Depression	12	7.67	8.44	12	7.17	6.79	-.730	*ns*

Anxiety	12	7.33	8.24	12	5.50	7.54	-.398	*ns*
Stress	12	14.8	10.1	12	15.3	11.5	-.540	*ns*
SWB	12	59.0	12.6	12	64.4	12.6	-2.090	< .05
GLS	12	56.7	17.2	12	62.5	14.2	-1,160	*ns*

Note: Depression, Anxiety, Stress = DASS-21. SWB =Personal Wellbeing Index. GLS =Satisfaction with Life as a Whole.

6.3.2 Participants' experiences and perceptions of the coaching applications

The participants received TC *M*=4.3 sessions, used the internet program an average of 2-3 times and the SC material 1-2 times across the duration of the study. The intervention period differed between the experimental groups: self-and internet coaching: 3-6 weeks; telephone group: 6-8 weeks. The duration of TC sessions ranged from 45 minutes to 1 hour; the IPC and SF group coaching time was not recorded.

Qualitative data was collected via a feedback questionnaire administered at Tp2. 15 (100%) participants responded. The response rate was higher in group 1 (telephone) *n*=7 than group 2 (internet program) *n*=5 and group 3 (self-coaching) *n*=3. The TC group represented the larger part (47%) of the sample, and responded with more comments compared to the other groups (see Table 6.7). The questionnaire collected data on a) experience of effects (thinking processes, planning and solution focus) and perceptions (advantages, disadvantages); b) suggestions for improvements (see Appendix A and B). The results from the semi-structured questionnaire will be presented by question/group.

Table 6.6: Response rate structured feedback questions at timepoint two

Question	Method	Response rate			
		Yes *n* (%)	No *n* (%)	Do not know/NA *n* (%)	n
1. Are you thinking differently regarding specific issues as a result of the coaching?	TC	7 (100%)			7
	ICP	1 (20%)	4 (80%)		5
	SF	1 (33%)	1 (33%)	1 (33%)	3
2. After the coaching intervention do you perceive any difference regarding your ability to solve different issues?	TC	7 (100%)			7
	ICP	1 (20%)	1 (20%)	3 (60%)	5
	SF		1 (33%)	2 (66%)	3
3. Is there anything you have done or planned differently as a result of the coaching received?	TC	5 (71%)		2 (29%)	7
	ICP	1 (20%)	3 (60%)	1 (20%)	5
	SF	1 (33%)		2 (66%)	3
4. Were there parts of the coaching that you did not think was helpful?	TC	1 (14%)	4 (57%)	2 (29%)	7
	ICP	2 (40%)	2 (40%)	1 (20%)	5
	SF		1 (33%)	2 (66%)	3
5. Would you suggest coaching to a friend or a colleague based on your experiences after this intervention?	TC	6 (86%)		1 (14%)	7
	ICP	2 (40%)	2 (40%)	1 (14%)	5
	SF	1 (33%)*	2 (66%)		3

* Possibly	

Note: Responses Structured Questions 1-5. TC=Telephone coaching group (*n*=7), ICP=Internet Program Coaching (*n*=5), SF=Self-coaching group (*n*=3). NA= No answer.

6.3.3 Telephone group

Results indicate that the TC affected cognitive behavioural aspects in terms of thinking processes (100%) and 'planning differently' (71%). All participants stated that the intervention had affected their problem-solving capabilities. The experienced difference in thinking processes and planning capability were: using planning skills more; seeing problems as less serious and instead trying to solve them; that the problems experienced were work environmental problems; useful ideas and changed perspectives on problems; normalisation of reactions; and increased clarity in communication. One participant mentions that the intervention was too time limited to make withholding changes.

The experienced differences in problem-solving capability included: mastering time planning; addressing and solving more problems; asking for more support and help from others; clearer communication in a) setting boundaries and b) problematic relationships; increased awareness of goal achievement (see Appendix A, Tables A1-A3).

Advantages with TC included: flexible, easier to plan with a work schedule, takes lesser time, feels safe receiving coaching in one's typical environment. The disadvantages were the lack of body language, which could make it less personal: 'It is harder to express yourself without body language'; 'A bit impersonal, you miss the body language for example'. Which in turn affected the communication between coach and coachee: 'Harder to read your client when you cannot see the facial expressions and body language'; 'Some people that have a harder time to open up, might have issues when not meeting face-to-face' (see Appendix A, Tables A7a and A7b).

Most participants (86%) would recommend coaching to a colleague or a friend. Part of the group would, if presented with a face-to-face alternative, choose that method (43%); while the other part would not (57%): 'I think it becomes a better conversation face to face, but I was surprised how well it worked' (see Appendix A, Table A6).

6.3.4 Internet program coaching

In the IPC group (*n*=5), a majority (80%) responded that the intervention did not affect thinking processes; falling to 60% for planning capabilities. Only one participant reported effects on thinking processes: 'I was reminded about this perspective more frequently at least'. One participant reported the effect on problem-solving capabilities: 'The difference was that reflection became more prioritised' (see Appendix B, Tables B3-B5).

The disadvantages mentioned were: 'The feedback data you could write in the program was limited, perhaps due to my answers'; 'The program felt a bit unprofessional, my suggestion is to make another program'. 40% would recommend IPC to a friend or a colleague - 'Yes, using the program can make you reflect on your situation' - while 40% would not. All the ICP users reported that they had used the program (see Appendix B, Tables B2, B6-7).

6.3.5 Self-coaching group

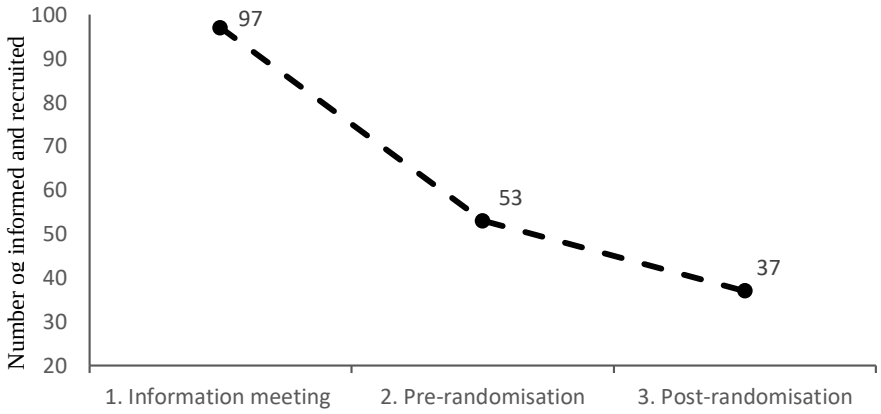
The qualitative data collected from the participants in SC group *n*=3 (see Appendix B) seems to indicate that most participants did not perceive the intervention as useful. Part of the group did not use the material: 'I had no immediate area/issue that I felt I wanted to work with'; 'I did not understand what to bring up, eliminating the human coach in a coaching process is the wrong way to go'. Only three responses to the questionnaire were received, and the comments were fewer compared to the other groups. One participant reported the effect on thinking processes: 'A bit, it has become more clear for me when I have written down the thoughts I have';' I thought more about the things I identified'. One participant would potentially recommend SC to a friend or a colleague: 'Possibly, could be a good way to break down a problem in smaller manageable chunks'. Another participant responded: 'No, it is important to receive feedback concerning your thoughts (in my opinion)' (see Appendix B, Tables B2, B6-7).

6.3.6 Descriptive statistics for randomisation and sequential design

The randomisation process was explicitly studied, and data was collected regarding initially interested participants. The design was tested in preparation for the main study and metadata was collected and analysed. 97 employees and leaders from eight teams were approached at information meetings at their workplace. From the 97-person sample, 53 (55%) employees showed pre-randomisation interest in participating by

responding to an e-mail after the meeting. 37 (70%) responded to the questionnaires at timepoint 1, after they were informed which research group they had been assigned to (post-randomisation). The remaining participants passively withdrew from the study by not replying to the questionnaires (see Figure 6.4).

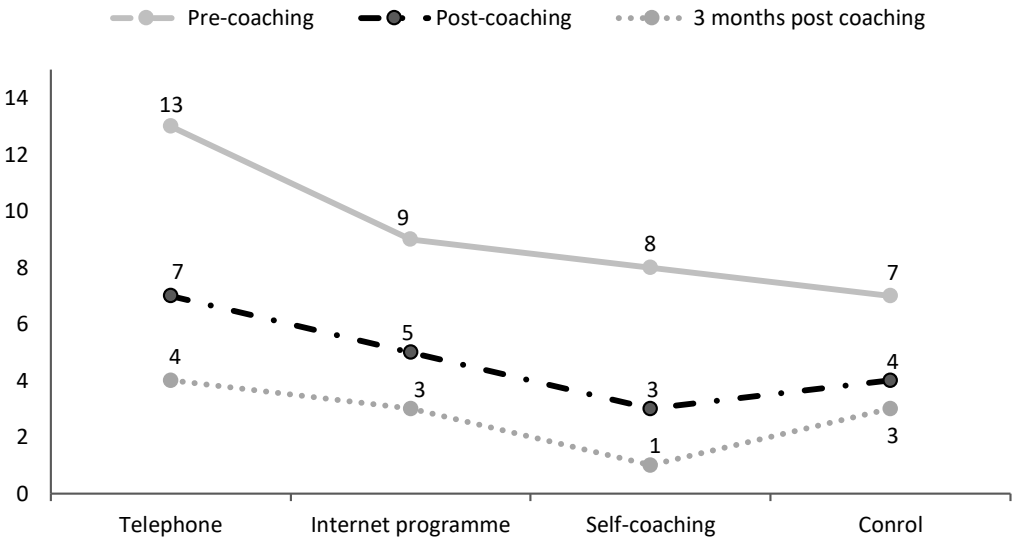
Figure 6.4: Recruitment and randomisation process, number of employees



Note: Descriptive data on 1) Number of approached employees at information meetings, 2) Pre-randomisation, initially interested participants, 3) Post-randomisation: participants answering questionnaires at timepoint 1.

The overall answering rate varied across timepoints: Tp1 *n*=37 (100%); Tp2 *n*=19 (51%); Tp3 *n*=11 (30%). The TC and IPC had the highest initial answering rate. At Tp1 (pro-randomisation), when the participants had been informed of which group they were assigned to, the answering rate varied between the research groups: TC: *n*=13 (87%), ICP: *n*=9 (69%), SF: *n*=8 (67%) and Control group: *n*=7 (58%) (see Figure 6.5).

Figure 6.5: Answering rate pre, post- and three months post-coaching.



Note: Attrition rates, Timepoint 1-3, Telephone, Internet Program, Self-Coaching and Control Group.

Drop-out rates concerning returning questionnaires were compared to the number of responses at the previous timepoint (see Table 6.7). At Tp2, they were: TC: 46%, ICP: 44%, SC: 62%; Control 43%. At Tp3, the response rate was between 1-3 responses/group,

Table 6.7: Descriptive statistics attrition rate

Group		Time 1		Time 2		Time 3	
	n	*Response*	*Non-resp*	*Response*	*Non-resp*	*Response*	*Non-resp*
1. TC	15	13 (87%)	2 (13%)	7 (54%)	6 (46%)	4 (57%)	3 (43%)
2. ICP	14	9 (69%)	5 (36%)	5 (56%)	4 (44%)	3 (60%)	2(40%)
3. SC	12	8 (67%)	4 (33%)	3 (38%)	5 (62%)	1 (33%)	2 (67%)
4. Control	12	7 (58%)	5 (42%)	4 (57%)	3 (43%)	3 (75%)	1 (25%)
N	53	37	16	19	18	11	8

Note: Response rate and non-responders across timepoints 1-3, all research groups.

Initially, the research groups were planned to consist of approximately 72 participants, with 18 participants randomly assigned to each group.16 (43%) participants did not respond to the questionnaire at Tp2. It is possible some have been using the interventions but not replying to the questionnaires. In the TC group, no participants prematurely ended the coaching intervention. However, no data could be collected from the ICP and SC groups on whether they had continued with the intervention but not responded to the questionnaires.

6.4 Discussion

The research aimed to explore the usability and effects of SFC and SFCBC combined with information communication technology (ICT). Post hoc findings and attrition rates advocated a number of changes in design, including removal of the: a) control group, b) SC group and c) third timepoint measurement. These significant changes affected the prospect of examining the original hypothesis and consequently reduced the reliability and validity of the findings.

The TC and IPC were combined into a new research group to explore whether PICTs could affect psychological and subjective well-being. The results from the combined group indicated that PICT could affect SWB ($p < .05$), but showed no support for effects on PWB. Another research objective was to explore participants' perceptions and experiences of the PICTs. The results suggested that TC affected cognitive thinking

processes and problem-solving ability, including: changed perspectives on problems - viewing issues with a different perspective; asking for more support at work; and solving issues more directly. The results also showed that the IPC and SC applications were less feasible and not perceived as equally effective as TC.
The discussion section was structured into three main parts: the effects of the method on PWB and SWB; perceptions and experiences of PICTs; and observations concerning the study design.

6.4.1 Psychological and subjective well-being

SWB post-test scores were higher than pre-test scores, although the scores were lower than the normative range estimate of 73.7 - 76.7 points (International Wellbeing Group, 2013), the descriptive statistics on the variables of depression, anxiety and stress (PWB) show scores in the normal range at both timepoints; apart from the stress score at Tp2, which shows mild symptoms of stress (Lovibond & Lovibond, 1995). Although the TC and ICP research groups were combined and the control group removed, the results might indicate that PICTs could potentially affect SWB. No significant results were detected pre and post-coaching concerning PWB (Depression, Anxiety and Stress). When examining the potential effects of PWB in 'healthy groups', it might be preferable to have a larger sample. to enable detection of intervention effects.

A comparison was performed between Study One (see Chapter 5)'s face-to-face coaching group (F2F), *n*=16; and the Psychological Information Communication Technology (PICT) adapted coaching methods, (PICT group), *n*=12. The two studies were performed approximately one-and-a-half years apart, with samples drawn from different contexts: a health care organisation and directly from work teams (not seeking assistance for stress reactions). The two groups had similarities and represented employees from the same organisation and educational background.

When comparing the results, PICT group stress scores at Tp1 were initially lower (fewer stress reactions). This observation strengthens the assumption that participants in a non-clinical sample could experience lower signs of stress and might not experience severe psychological symptoms (depression, anxiety, and stress) to the same extent. It is likely that even though performing research in non-clinical work teams, individuals might be suffering from stress, anxiety or depression and in need of longer-term interventions, such as psychotherapy or counselling. Using cut-off scores from, for example, DASS-21 (Lovibond & Lovibond, 1995), could potentially be employed as a

screening tool: deciding eligibility for entering a study and when other interventions like psychotherapy are needed.

When comparing the groups at Tp2, the F2F group also reported lower stress (less stress reactions) scores (n = 15, M = 9.2, SD=6.1) compared to the PICT group (n = 12, M = 15.3, SD=11.5). Both groups reported similar SWB scores pre-coaching (M=59), which is lower than the normative range of 73.7-76.7 (International Wellbeing Group, 2013). Furthermore, after the intervention, the PICT group SWB score was lower (M=64.4) than the F2F group (M=76.3) three months post-coaching. One reason for this could be that the health care group may have experienced a heightening of SWB overall after the threat of job loss as a consequence of organisational downsizing had dissipated.

Hypothetically, this could also indicate a difference concerning intervention effect between the F2F and PICT group; and that F2F coaching is more effective in enhancing PWB (less stress) and SWB. It is plausible to assume that the methods needed further development and adaptations to be equally effective and feasible. This assumption was corroborated by feedback data.

6.4.2 Psychological information communication technology

Information Communication Technology (ICT) was hypothesised as viable to combine with coaching interventions. To explore the feasibility of the adapted PICT methods, the participants' experiences were investigated in terms of several factors: thinking processes, planning, problem-solving, experienced advantages and disadvantages, and suggestions for change.

There was a recorded difference between the number of coaching sessions used depending on the group: the TC participated in M=4.3 sessions; the IPC between 2-3; and the SC, 1-2. The intervention period (time spent in intervention until completion) also varied between the groups: TC: between 6-8 weeks; IPC / SC: 3-6 weeks.

In the TC group, a majority expressed effects on thinking processes, with 71% reporting that abilities like planning and problem-solving had changed in the following ways: viewing issues with a different perspective; asking for more support at work; solving issues more directly; increased awareness of important goals. The advantages included: flexible; more comfortable to plan with a work schedule; takes less time; and feelings of safety when receiving coaching in one's normal work environment. The disadvantages included lack of body language, which could make it less personal. One participant also mentions that the intervention was too time limited to make withholding changes (see

Appendix A, Tables A7a and A7b). Most participants (86%) would recommend TC to a colleague or a friend. Part of the group would, if presented with a face-to-face alternative, choose that method (43%); while the other part would not (57%). The TC group's perceptions and experience had similarities to the interview data from the F2F group (see Chapter 5).

This reported change was hypothesised to be an effect of the PF and SFCBC approach. Problem-solving is defined as "a cognitive-behavioral intervention that focuses on training in adaptive problem-solving attitudes and skills" (Bell & D'Zurilla, 2009, p. 348). These techniques could potentially have cognitively assisted the participants in finding solutions to issues they experienced. The problem-solving approach consists of five different segments: general orientation, problem definition and formulation, generation of alternatives, decision making, and verification. The use of this approach could potentially have increased learning on how to solve problems more effectively and choose the most appropriate way of responding (D'Zurilla & Goldfried, 1971).

The PRACTICE framework also consists of other theoretical building blocks that could explain the change experienced in thought processes and problem-solving abilities: namely, the goal attainment process, which has been repeatedly linked to a positive effect on SWB. (Brunstein, 1993; Elliot et al., 1997; Sheldon & Kasser, 1998; Sheldon & Elliot, 1999; Sheldon et al., 2002). Most participants (86%) would recommend TC to a colleague or friend; part of the group would, if presented with a face-to-face alternative, choose that method (43%), while the other part would not (57%). From this, it seems that most participants perceived that using electronic means/audio was a sufficient carrier technology for coaching.

The reported disadvantages likely explain the views of the remaining 43%. The lack of body language in the communication between coach and coachee affected how well the latter could express themselves: meaning that, for parts of the group, the relationship felt less personal. Personal is defined here as "of or concerning one's private life, relationships, and emotions rather than one's career or public life" (Oxford English Dictionary Online, 2019). In a coaching relationship, personal issues or developmental needs are often a focal point of the conversation; and sometimes, the reason for seeking assistance in finding other ways (thinking processes, behaviour and emotional responses) to deal effectively with changes or solve different issues. If the coachee is not able to connect to the coach on personal matters, this would likely affect the outcome of the coaching intervention.

At the time of this study (2010-2011), the digital method was not in use so frequently, and Skype had only recently been introduced on the company network. Nowadays, Skype includes both audio and video; being able to visually view facial expressions might strengthen the feeling of personal connection.

In the IPC group (*n*=5), a majority (80%) responded that the intervention did not affect thinking processes; with this figure falling to 60% for planning capabilities. Only one participant reported effects: 'I was reminded about this perspective more frequently at least'. One participant reported the effect on problem-solving capabilities: 'The difference was that reflection became more prioritised' (see Appendix B, Tables B3-B5). Disadvantages reported included lack of space when writing responses in the program, and that the program did not feel professional. 40% would recommend IPC to a friend or a colleague – 'Yes, using the program can make you reflect on your situation' - 40% would not. All the IPC users reported that they had used the program (see Appendix B, Tables B2, B6-7).

The qualitative data collected from the participants in the SC group *n*=3 (see Appendix B) seems to indicate that most did not perceive the intervention as effective. Part of the group did not use the material. The qualitative findings show that PICT coaching interventions must be carefully reconsidered and adjusted, with the exception of the telephone application. The internet program used in the study would inhibit the possibility of comparing conditions, as the method differed from the PRACTICE framework (PF).

The paper-and-pen version of PF was too simple design-wise and needed re-designing into a more user-friendly self-coaching program, adding components of design, sections and more explanations within the program itself to guide the user through the coaching process (Hultgren et al., 2016). With the introduction of Skype for Business within the company intranet, the telephone group could be changed to a Skype group, using the telephone as back-up technology in cases where Skype may not be working correctly.

6.4.3 Randomised and sequential research design, effects and results

The study was initially planned as a mixed-design analysis of variance with a sequential design. A randomised design was included to enable between-participant analysis, exploring possible differences in SWB and PWB compared to the control. The examination of the metadata in terms of the randomisation process and sequential design pinpointed challenges which need to be managed in future studies. It was not possible to explore multiple levels of

the effect of time on the DV PWB and SWB due to attrition rates, lack of resources and time restrictions. The attrition rate implied that when constructing the main study design, an a priori power analysis needs to be performed. It will be essential to recruit an accurate number of participants to achieve sufficient power by using 'rolling' recruitments, ceasing this when the quota is filled.

Initially, the research groups were planned to consist of approximately 72 participants, with 18 participants randomly assigned to each group. At timepoint one, 16 (43%) participants did not respond, while 49% of the group were lost at timepoint two. Some may have been using the interventions but not replying to the questionnaires: which was the case in the TC group, where no participants prematurely ended the coaching intervention. Low response rates naturally impact on the prospect of measuring effects of methods over time and pose challenges when interpreting variables, interplay and correlations between factors.

Low answer rates seem to be a general issue in research, especially longitudinal research. Response and attrition rates have historically been an important way of judging data quality. However, response rates have been declining in urbanised, high-income countries to the point where many cross-sectional surveys now have rates of below 50% (Atrostic et al. 2001; Brick & Williams, 2013; de Leeuw & de Heer 2002; Groves 2011; Singer 2006). Participant interest in the subject of research can also affect attrition rates: 'Despite a response rate of only 52%, the results of a community-based GI survey do not appear to be impacted by non-response bias in a major way' (Choung et al., 2013, p.1).

A low response rate does not necessarily indicate non-response bias; the literature has recognised they only indicate potential bias (Lessler & Kalsbeck, 1992). Interestingly, Smith (2009) performed a study on a 'low response rate sample' of two large groups consisting of 100,000 and 65,000 participants, by using financial incentives to increase the response rate. 90% of the non-response sub-sample group answered the questionnaire and, when compared to the original sample, showed no evidence of bias.

Combining and introducing relatively new PICTs with a randomisation process highlights specific problems. In the F2F study (see Chapter 5) conducted within health care, the participants knew which method they were going to receive and additionally had regular contact with a coaching psychologist. The F2F and TC conditions represented a more controlled situation when compared to the SC and IPC conditions,

where the structure had to be created by the participant, and will often have depended on their levels of motivation. To improve the structure around PICT methods, a more extensive information segment could be added, such as: how to create the structure necessary to perform SC, with time planning or private bookings ensuring that the coachee allocates the time needed for a regularly occurring SC process.

Additional emphasis could be put on describing in more detail the different methods and randomisation process itself. In a randomised study, the participant is not able to choose an application based on interest, and when receiving information about their assigned group, may choose to drop out due to lack of interest. No participants withdrew actively from this study, however, the drop-out rate when it came to answering the questionnaires was relatively high. According to feedback data, the TC group showed more interest in documenting and relaying feedback data when compared with the other groups: suggesting an interest in the TC intervention itself. The reason for the attrition rates of the SC and IPC group, according to feedback (SC in particular), was that this form of coaching was not perceived as motivating and attractive. When comparing the PF TC and SC groups, it was assumed that the current manualised version of the PF (SC) was not feasible and that the 'manner of delivery' or version of the method was the issue; not the PF method itself.

When analysing the metadata, it was difficult to conclude if a) the randomisation process or b) assigned coaching method had an effect on the response and participation rate, even though the results could indicate a possible correlation between these factors. The participation and attrition rate in some of the conditions differed, especially the SC group: where only 57% decided to continue participating after the randomisation process, compared with 89% of the TC group. The descriptive statistics concerning the control also had similar declining answering rates over time when compared to the other conditions. It can therefore not be assumed that only the coaching method was the reason for the lower response rate at timepoints 2 and 3, nor the randomisation process. To adjust according to these findings, a waiting list control group could be a better option, by offering participation in one of the coaching groups after the time under the control has ended; as well as using rolling recruitments.

To improve response rates in a future study, the number of questionnaires used should be kept to a minimum. Repeating a number of questionnaires three times might overload the participant. Organisations usually perform internal company surveys on a yearly basis; and it could be helpful to ensure that these measurements do not collide

with research questionnaires. In an organisation, a research project competes for time with work assignments, and the focus of employees is naturally on completing work-related tasks. The managers, therefore, become essential in communicating that work time can be used for participating in a study.

During this study, a large amount of paper, envelopes and reminders was sent through the regular postal service. Another reason for the lower response rate could also have been that postal service. At the time of the study, the company internal postal service was changing internal addresses due to organisational changes; at times, the questionnaires arrived later, after been sent to the wrong addresses. It was apparent that a change of method for data collection had to be made to simplify this process. In future, data collection through internet-based survey platforms would be preferable. A change in the data collection method would not only provide a more convenient way to control and distribute surveys but also when sending reminders. An e-sign service could also be added to simplify signing the consent documents.

Although the PF utilises a basic goal rating scale and definitions of goals using the SMART framework, the use of a validated goal rating scale would allow for a more reliable measurement of the goal attainment process and potential effects of the intervention. Additionally, collecting data on which goals the participants choose to focus on could potentially increase understanding of which work environment factors affect employees.

Generally speaking, when performing research in organisations where changes affect employees, it is essential to know if any significant organisational change is planned - performing research in the middle of organisational change processes should be avoided wherever possible. Employees and leaders naturally become occupied with the effects of the change and have less time or motivation to participate in a study. A study which focuses on exploring effects of individual interventions to factors which may be more connected to an organisation's change process itself could also be counter-productive.

In an organisational context, it could also be of interest to explore team coaching methods: as coaching a team would appear, at face value, to be more productive and enable the capture of organisational factors more directly. It would, therefore, be advisable to thoroughly investigate if the organisation is planning a significant organisational change within the period of the research; albeit, a researcher is seldom in

the position to entirely choose the context for a study in ‘real work life’. The world outside the company also has an impact that can be hard to predict, adjust or plan for.

Since organisational change is a rather constant factor, another critical question to ask is: what constitutes a significant enough change to count as an extraneous variable? However, issues in research processes often give essential clues in terms of study design and methods. Even though the results in this study were affected by attrition rates, it provided important information on, for example, the need for calculation of statistical power, data collection methods, method feasibility and attrition rates management.

6.5 Conclusion

The results obtained from this study show that PICT, specifically the telephone application, seems to be a feasible method to use in non-clinical groups. The SC and the IPC application resulted in more diverse feedback on completion; these methods are not feasible to use in their current version. Therefore, additional software and method development will be needed to increase usability for future studies. The randomisation process and sequential design pinpointed challenges which will have to be managed with, among other adjustments, rolling recruitment.

Chapter 7: Can different applications of solution focused cognitive behavioural coaching enhance wellbeing?

7.1 Introduction

The overarching aim of the research process and the current study was to investigate if different applications of solution focused cognitive behavioural coaching (SFCBC) could enhance well-being. The reason for initiating the research was the gap that had been identified concerning individual proactive methods to minimise possible effects of stress-related issues on psychological health. Proactive methods that potentially could be of use in organisations and teams also outside a company health care organisation. Over the course of the research process, the original SFCBC method was adapted into new applications e.g. Skype and self-coaching to enable comparisons between not only the control group but also between intervention groups. The reason for the adaptation and comparison between groups was the emerging new internet based communication technology that developed alongside the research. New research questions were included that centred around if these applications of coaching potentially had equal effect compared to the more traditional face to face method (see chapter 5).

The overall research process involved five steps:

1) Study 1, inductive explanatory design; forming a posteriori hypothesis.
2) Study 2, deductive explanatory design, aiming to test the design and hypothesis.
3) Study 3, a team coaching method, including a psychosocial risk assessment, was developed and tested (Hultgren et al, 2013; Hultgren et al., 2016b).
4) Study 4, a computerised coaching programme was developed and piloted (Hultgren et al., 2013, see Appendix O).
5) Study 5, experimental randomised controlled design (current study).

This chapter presents the last step of the research process/journey and describes a sequential randomised controlled study conducted in a workplace setting, and is referred to as the main study. This chapter will contain a description of the study and method section. The results from the current study and the following discussion will be presented in Chapter 9 and 10.

7.2 Aim of the study

The aim of the current study was to investigate whether different applications of psychological coaching (SFCBC), including a goal attainment process, could increase psychological and subjective well-being. Furthermore, if SFCBC inhabiting a goal attainment process could act as a personal resource, moderating potential demands and psychosocial risk factors in the work environment.

The study was ethically approved by the Psychology Research Ethics Committee at City, University of London, UK.

7.2.1 Study Objectives

7.2.1.1 Main objective

Hypothesis 1: A significant positive decrease will be observed in signs of depression, anxiety and stress, at the completion of the intervention period and three months' post coaching, in all three conditions (face to face, Skype and self-coaching) compared to control.

Hypothesis 2a: A significant positive increase will be observed in measures of subjective well-being (Satisfaction with Life Scale) at the completion of the intervention period and three months' post coaching, in all three conditions (face to face, Skype and self-coaching) compared to control.

Hypothesis 2b: A significant positive increase will be observed in measures of subjective well-being (Personal Wellbeing Index) at the completion of the intervention period and three months' post coaching, in all three conditions (face to face, Skype and self-coaching) compared to control.

Hypothesis 3: No significant differences will be observed between the different applications of solution focused cognitive behavioural coaching at the completion of the intervention period and three months' post coaching.

Hypothesis 4: A significant positive increase will be observed in goal attainment scores at the completion of the intervention period in all three conditions (face to face, Skype and self-coaching).

7.2.1.2 Secondary objective

Hypothesis 5a-g: Significant positive decrease will be observed in perceived psychosocial risk factors: a) demands, b) control, c) manager support, d) peer support,

e) relationships, f) role and g) change, measured at the completion of the intervention and three months' post coaching.

More specifically the study took an approach examining if the SFCBC, PRACTICE framework (Palmer, 2011) and the goal attainment process within the coaching method, measured through Goal Attainment Scaling (Kiresuk & Sherman, 1968), could act as a moderator, mediator, and/or direct predictor of psychological and subjective well-being outcomes, measured by: Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995), Satisfaction With Life Scale (Diener, et al., 1985) and Personal Wellbeing Index (International Wellbeing Group, 2013). It was also predicted that all applications of SF-CBC (Face to face, Skype and computerised/self-coaching) would act as a resource according to the Job Demand Resource model (Bakker & Demerouti, 2007; Demerouti et al., 2001) which assumes that job demands potentially could lead to negative health via a pathogenic path and job resources lead to positive health via a salutogenic process. This model further assumes that job resources have a beneficial impact on negative psychological health since the more resources employees have available the easier recovery from demands. A balance between Job-Demands and Resources will according to the model more likely lead to a salutogenic process and as such increase psychological and subjective well-being or sustain already positive psychological health and well-being. Furthermore, it was hypothesised that all applications of SFCBC (acting as a personal recourse) would positively affect the participant's perceptions of current work or psychosocial risk factors, present in their psychosocial work environment measured by the HSE's MS Indicator tool (Cousins et al., 2004).

Exploring the above research questions contributes to the field of coaching psychology and organisational psychology by 1) adding to the empirical coaching literature on the effectiveness of coaching in an organisational context. 2) being one of the first studies to consider the effect of coaching as a personal resource (support) on the individual's perception of the work factors inhabiting the psychosocial work environment.

7.3 Method

The method section details the methodology utilised in the study and includes an explanation of the study's design, a description of the participants, and the recruitment process. The chapter also details the procedure employed in each condition, the measures used, the justification for group size and data analysis plan.

7.4 Research design

Three different modalities of coaching were investigated; face to face, Skype and a computerised self-coaching programme, see Table 7.3. All applications of the coaching intervention were based on the PRACTICE framework (Palmer, 2011) for consistency in the methodological approach. The methods used had been explored for feasibility and adapted according to previous study results and findings. To test the hypotheses, both primary and secondary objectives were identified. The primary objective examined SF-CBC potential influence on psychological and subjective well-being. Furthermore, the examination of the goal attainment process. The secondary objective concerned the SF-CBC applications possible effect on the participant's perceived risk factors in the work environment. The study utilised a randomised sequential experimental design and in total 86 participants were initially recruited. Comparisons were performed between the intervention and control group at three different time points, pre-, at completion and three months' post coaching. The dependent factors (DV) were: psychological well-being (signs of depression, anxiety & stress), subjective well-being and goal attainment. Furthermore, work factors(DV): demands, control, relationships, manager and peer support, role and change.

7.5 Participants

The research group consisted to a large extent of civil engineers (76%), a profession and university degree that in Sweden spans over all fields within engineering for example civil-, mechanical-, computer science and electronics engineering. The research group were categorised as performing 'knowledge work jobs' defined as "those in which the primary task is the acquisition, creation, packaging or application of knowledge" (Davenport et al., 1996, p.54).

The participants were recruited in two ways; 1) The HR department or leaders invited the researcher to a department meeting to describe the study. After the meeting the researcher got an e-mail list to the team members and an e-mail was sent individually from the researcher to each employee with an explanatory / information document about the study (see Appendix H-I). 2) Individuals could also join the study separately after information about the study had been given by a leader or HR on a department meeting. The researchers 'contact details were given to the team members if they were interested in participation they could contact the researcher through e-mail or the telephone for more information. An information meeting was then booked between the researcher and

each participant separately to inform about the study, ethics, data collection and, the process of the coaching sessions and the research study. After this phase, an e-sign Adobe service was used to send and sign the Agreement form (see Appendix H). Coaching was provided gratis to the coached participants and the organisation.

7.5.1 Coaches

The researcher was a licensed psychologist with a Master of Science degree in psychology; and qualified coaching psychologists with a Certificate in Psychological Coaching who had undertaken appropriate training and supervised practice in coaching psychology. The researcher was a member of both the Swedish Psychological Association (SPA) and British Psychological Society (BPS) and followed the Professional Ethics Principles for psychologists in the Nordic countries (SPA, 1998) and Code of Ethics and Conduct (BPS, 2018).

Following the PRACTICE framework steps and questions (SFCBC), the face to face (F2F) group was coached by the researcher and two other licensed psychologists working in the Company Health Care organisation, bound by the Professional Ethics Principles for psychologists in the Nordic countries (SPA, 1998). These two additional psychologists had 5-10 years of working experience and were coaching 38% of the F2F group, the researcher covered the remaining 62% of the F2F coaching sample. Before the research started these two psychologists attended three seminars on Coaching Psychology and the PRACTICE method specifically where the content used was drawn the Handbook of Coaching Psychology (Palmer & Whybrow, 2007). The researcher was also available for support during the project.

The Skype group was coached mostly by the researcher at 95% of the sample, with the further 5% being coached by one of the company healthcare psychologists.

7.6 Instruments

A number of different questionnaires were used measuring: subjective and psychological well-being, life satisfaction, psychosocial work environment risk factors and goal attainment.

7.6.1 Personal Wellbeing Index

Subjective well-being (SWB) has traditionally been measured by a single question regarding how people rate their satisfaction with ‘life as a whole’ (Diener, 1984). Satisfaction with one’s life was later recognised as representing a number of different domains of life (Scollon et al., 2005). The PWI scale contains seven domains

representing the first-level deconstruction of ‘life as a whole’ and provides insights into the various aspects what shapes the individuals SWB (Cummins 1996, 1997; International Wellbeing Group 2013). Answers are reported on an 11-point Likert type scale where 10 represents ‘completely satisfied’, score 5 ‘neutral’, and 0 ‘completely dissatisfied’. The satisfaction scores from all domains are summed to produce a mean satisfaction value, known as the PWI score, which represents SWB. Data from the PWI can be analysed either in combination or as separate domains, with its own normative range. Over the period 2001–2010, 24 surveys of the Australian adult population were conducted (Cummins et al. 2010) resulting in a normative range estimate for the complete (all life domains) SWB between 73.7 and 76.7% points. The normative range can be utilised using group measurements to identify geographic areas that are at risk and therefore need more resources (The Australian Centre on Quality of Life, 2017). Comparisons between different countries (Sweden not included) show that the Nordic country Norway, had a Mean score of 78.0 (Richardson et al., 2013). The Personal Wellbeing Index, has been translated and administered in various languages and contains seven items of satisfaction, each corresponding to a quality of life domain: standard of living, health, achieving in life, relationships, safety, community connectedness and future security The PWI scale has demonstrated good psychometric performance in terms of its reliability, validity and sensitivity (International Wellbeing Group, 2013; Lau et al., 2005).

7.6.2 Satisfaction With Life Scale

Satisfaction With Life Scale (SWLS) is a short five-item instrument designed to measure global cognitive judgments of satisfaction with one's life (Diener et al., 1985). The individual items are not intended to have separate meaning within the SWB construct that together, provide a measure of global SWB. The instrument has shown to be a valid and reliable measure of life satisfaction, suited for use with a wide range of age groups and applications (Diener et al., 1985). In addition, the high convergence of self- and peer-reported measures of subjective well-being and life satisfaction have “provided strong evidence that subjective wellbeing is a relatively global and stable phenomenon, not simply a momentary judgment based on fleeting influences” (Pavot et al., 1991, p.149). A significant positive correlation between PWI and SWLS has been found (r =.792) $p < 0.01$ (Richardson et al., 2013).

7.6.3 Depression, Anxiety and Stress Scale

Depression, Anxiety and Stress Scale (DASS-21) (Lovibond & Lovibond, 1995), was used to assess psychological well-being. DASS-21 was also used as a screening tool deciding eligibility before entering the study. The Depression Anxiety Stress Scale, originally consists of 42 items comprising three scales of 14 items. Items refer to the past week and scores range from 0, "Did not apply to me at all," to 4, "Applied to me very much, or most of the time." The Depression scale measures hopelessness, low self-esteem, and low positive affect. The Anxiety scale assesses autonomic arousal, physiological hyperarousal, and the subjective feeling of fear. The Stress scale items measure tension, agitation, and negative affect. The scales are considered to approximate facets of diagnostic categories: Depression scale for mood disorders, Anxiety scale for panic disorder, and Stress scale for generalised anxiety disorder (GAD; Brown et al., 1997). Further research resulted in a 21-item version of the DASS (DASS-21) with seven items per scale. The original DASS have been found to distinguish well between depression, physical arousal, and psychological tension and agitation, and this finding includes the DASS–21. Internal consistency and concurrent validity of the DASS and DASS–21 were in acceptable to excellent ranges (Antony et al., 1998). DASS-21 has shown positive psychometric properties in older adult primary care patients (Gloster et al., 2008). Results indicate that the DASS-21 has overall good-to-excellent internal consistency, a three-factor structure consistent with younger samples, very good convergent validity, and acceptable discriminative validity – especially with respect to the depression scale. DASS-21 compared to the Brief Symptom Inventory (Derogatis, 1993) have shown good correlation concerning the Anxiety and Depression subscale, Anxiety (r=0.61) and Depression (r=0.70) (Mitchell et al., 2008). DASS-21 has also been found to be a valid and reliable measure of depression, anxiety and stress in a non-clinical sample of the UK population (Henry & Crawford, 2005).

7.6.4 HSE Management Standards Indicator Tool

HSE MS Indictor Tool (HSE, 2002) is an instrument widely used by organisations across different industries in the UK to measure different aspects of working conditions. The design of the indicator tool is based on capturing employee's perceptions of their work situation and thus reflecting a current understanding of the stress process within the organisation. HSE Management Standards Indicator Tool, cover six key areas of the psychosocial work design that, are associated with well-being at work or if not managed

could result in poorer well-being, lower productivity and increased sickness absence (Cousins et al., 2004). The 35-item questionnaire assesses seven psychosocial variables; Demands (8 items), Control (6 items), Managers' support (5 items), Peer support (4 items), Relationships (4 items), Role (5items), and Change (3 items). These work factors include: 1) Demand – areas like workload, work patterns and the work environment, 2) Control – how much say the person has in the way they do their work., 3) Support – the encouragement, sponsorship and resources provided by the organisation, line management and colleagues, 4) Relationships – promotion of positive working relations to avoid conflict and dealing with unacceptable behaviour, 5) Role – whether people understand their role within the organisation and whether the organisation ensures that they do not have conflicting roles, 6) Change – how organisational change (large or small) is managed and communicated in the organisation (Cousins et al., 2004). An Analysis Tool was launched in 2008 by HSE, which permitted organisations to compare or benchmark their scores with collected data from other organisations (HSE, 2008). The MS Indicator Tool has been validated in previous studies (Cousins et al., 2004, Edwards et al., 2008). Since the previous validation used a data set of primarily public sector organisations, a new reanalysis of 137 UK organisations (N=67,347) concluded that the Indicator Tool's factor structure was valid across different sector industries (Edwards & Webster, 2012). An Italian version has also been found to be strongly consistent with the UK version and may be used for the screening of psychosocial risks in Italian workplaces (Toderi et al., 2012). National normative data at the Indicator Tool have been developed for the six MS (see Edwards et al., 2008) which distinguish four types of organizational performance: 1) urgent action needed (for scores lower than the 20th percentile); 2) clear need for improvement (scores higher than the 20th percentile but lower than the 50th percentile); 3) good (50th-80th percentile); 4) doing very well (higher than the 80th percentile) (Edwards et al., 2008). Research into the factors of the MS Indicator Tool have revealed that low scores on the factor demands consistently predicted job-related anxiety as well as depression and distress (Kerr et al., 2009; Guidi et al., 2012; Bartram et al., 2009), sickness absence attributed to work-related stress (Houdmont et al., 2012).

7.6.5 Goal Attainment Scaling

Goal attainment scaling (GAS) has shown to be a valid and reliable form of quantitative scaling techniques (Kiresuk & Sherman, 1968), and have been effectively applied evaluating the progress of programme specific goals (MacKay & Lundie, 1998). The

GAS evaluation approach with transformed scores to standard scores, is however under debate, “GAS scores into standard scores (for the purpose of quantitative evaluation) has been strongly criticised. In response to these criticisms, MacKay and Lundie (1998) proposed that goal-scale ratings may be better treated as ordinal data (thereby making fewer assumptions about the data) and presented as frequency counts on dimensions such as post-intervention attainment levels, goal categories, goal weightings” (Spence, 2007, p.161). In the light of that argument, the statistical analyses could instead be performed with a corresponding non-parametric test (Spence, 2007). Practically speaking, when using GAS in an organisational setting available resources, including time, play its part and influences the number of goals set for a coachee within a certain intervention period. Although Kiresuk et al. (1994), recommends, for psychometric reasons, setting at least three goals per client, the number of goals documented in this study for practical reasons ranged from 1-2 consistent with previous research in this field which have set 1 or 2 goals per client (King et al., 1998; Palisano, et al., 1992; Palisano, 1993; Stephens & Haley, 1991).

The GAS spreadsheet was used during the coaching sessions and followed up continually during the intervention. For the self-coaching group, the GAS recording sheet was included in the programme and explained by the coach before the start of the coaching intervention. Support for the GAS process concerning the self-coaching group was also provided and continuously followed up by the researcher during the follow-up meetings that regularly was performed. The GAS measurement process involved a number of steps. 1) a GAS recording sheet was used to specify a number of goals important to the coachee that was set up at the start of the coaching intervention and used in a circular process over the course of the programme. Goal attainment scaling was not applied to every stated goal and followed the Turner-Stokes (2009), recommendations of documenting only a few key objectives, goals that are later rated in terms of outcome level of achievement. 2) An importance rating, in other words, clarifying how important the goal is to achieve, (ranging from 1= important to 3= extremely important and 3) Difficulty rating was measured on a Likert scale were 1= not difficult to 4 = very difficult). When the attainment of the specific goal was reached the participants rated their success on reaching the goal on a simple five-point Likert scale: +2 = much more than expected (overachieved goal), +1=more than expected (achieved more than the goal), 0=as expected (achieved goal as expected), -1= less than expected (some improvements but goal not achieved) and -2 much less than expected (no change). The current study adopted, Lynne Turner-Stokes (2009), Kings College

London, model and calculation (in Microsoft Excel) spreadsheet. Apart from Turner-Stokes (2009) recommendations and model, similar detailed GAS procedures can also be found elsewhere in the literature (Bovend-Eerdt et al., 2009; Kiresuk et al., 2015). The electronic calculation sheet, automatically calculates the baseline, achieved and change scores and is freely available on the Internet. The calculation sheet permitted several goals from each participant to be calculated together for a medium attainment T-score. Turner-Stokes method gives a numerical T-score which is normally distributed about a mean of 50 (if the goals are achieved precisely) with a standard deviation of around this mean of 10 (if the goals are overachieved or underachieved) (Turner-Stokes, 2009). The approach includes weighting of goals to reflect the opinion of the coachee on the personal importance of the goal and the opinion on the difficulty of achieving the goal. The opinion of the difficulty was performed by a conversation between the coachee and the coach and not by the coach. The evaluation of importance and difficulty was used for qualitative reasons during the goal setting phase and could be expected to lead to more accurate prediction of goal attainment (Turner-Stokes, 2009). The conversation about the importance and difficulty level could facilitate goal commitment by discussing the importance of goal outcomes and the belief that it is possible to attain the stated goal (Locke & Latham, 2002). In cases when difficulty rating is not used, goal progression may in reality be attributed to other factors such as commitment or ability (Prywes, 2012). Using a weighting technique for each goal, the method becomes sensitive to change, since goals with high difficulty rating have a greater influence on the overall goal attainment change scores than goals with lower ratings (Spence, 2008). For example,

> if one participant rates their goal as 1 (very easy) and a second participant rates their as 4 (very difficult), and the same amount of progress is observed for both goals between two time points (e.g., a change in success rating from 50% to 75%), then a greater degree of attainment will be recorded for the second participant than the first, due to the weighting it has received" (Prywes, 2012, p. 13).

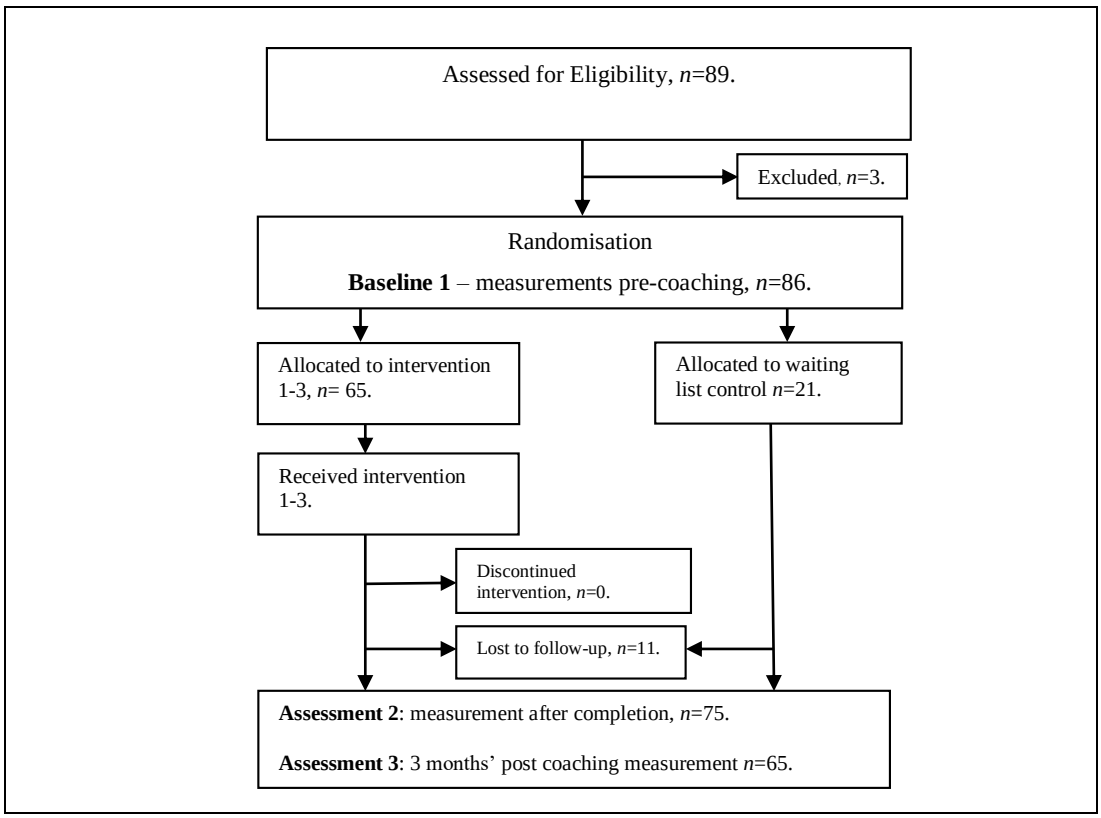
Prywes (2012) concludes that without the added accuracy difficulty rating provides, draw an erroneous conclusion may be drawn, for example, that two participants achieved the same progress on their goal attainment. This study applied the Turner-Stokes approach calculating scores, but the scores were not part of the parametric statistical analysis. The results from the GAS are therefore, presented separately using

descriptive statistics to calculate outcome measures of coaching effects, compared between groups. The control group did not perform GAS measurements as it was not practically possible considering study constraints.

7.7 Procedure

When a participant showed interest in participating in the study after a department meeting and after the information about the study had been explained, given that the employee accepted to participate, an e-sign document was sent regarding the agreement of data processing, using an e-sign service, (Adobe e-sign). After the agreement was signed, a screening questionnaire (DASS-21, Lovibond & Lovibond, 1995) was administered to determine eligibility. After the screening, eligible participants continued with the baseline assessment. The randomisation process allocated them into one of the three intervention groups, and to a waiting-list control group, see table 9.3. After the randomisation process an e-mail was sent to each participant explaining the method/coaching intervention and a meeting set up individually (apart from the control group) to explain and answer any questions the participant had in person regarding the method. The participants in the waitlist control group received no intervention during the time that the participants in the intervention group completed the 6-8 -weeks coaching intervention; at the end of this period, and after assessments of both groups, a second randomisation was performed allocating the participants in the control group to one of the three intervention groups (see Table 7.3).

Figure 7.1: Research design/procedure: screening, randomisation and data collection process/intervention (face to face, skype, self-coaching and control group).



7.7.1 Goal attainment procedure

The goal setting process included three different phases:

1) The e-mail sent to the participant pre-coaching, explained the coaching process more in detail, informing about a number of general areas, common in coaching was listed. These included developmental areas in the working role, needs and feelings concerning the work situation, the balance between work and private life, relationships to other people, time management, change and its effects, support and areas connected to demands.

2) The coachees were suggested to before the coaching reflect and decide on goals/subject(s) connected to that goal that felt most important, and this preparation or approach was thought to assist in further clarifying the method. Another thought behind this approach was to alleviate any uncertainties about the method in cases were the coachee did not have any experience in coaching. The participant was not restricted to only chose from the list of examples of work-related areas.

3) During the first meeting, the coach and coachee continued to formulate the goal further by breaking it down to SMART goals following the PRACTICE (and GAS) structure. By doing so the goal was discussed more in detail and clearly stated, broken down into more concrete practical steps with associated time frames. The time frames sometimes also guided the next date for the coaching session. Due to time restrictions,

only the first goal was chosen for documentation for the study. The GAS process was explained in the introduction meeting with the self-coaching group, and in the follow-up meetings that were regularly set up during the coaching process.

7.7.2 Inclusion, exclusion criterion

Participants were included if they were: white collar personnel (including managers) and above 18 years old. Employees receiving professional mental health treatment were excluded, and assistance with referral to councillors or psychotherapists were offered. A cut-off score was used to determine eligibility for the study. The criterion for exclusion was set individually for the three scales: Depression=20, Anxiety= 14 and Stress=24. Employees that scored above cut-off values were, if agreed, transferred to the company health care or primary care counsellors or psychotherapists.

7.7.3 Control group

It was noticed by the researcher during the recruitment process that the idea of employees participating or investing valuable time, in a study were the participants would not receive any interventions until later or receive a self-coaching programme was by some leaders considered less attractive than if all their employees had been offered to participate receiving Skype or face to face coaching. Initially, the control group was randomised alongside the three research groups, but 4 months into the study a decision was made to not randomise the control group based on the information from the participating organisation. The control group was instead recruited as a non-randomised condition with participants from the same organisation and similar working conditions and professions, where the participants knew that they were 'only' part of a control group.

The process for the waiting list control group, before the adaptation, were structured into the following steps: 1) participants were offered to participate in one of the randomised intervention groups, after the time in control had ended, 2) a second randomisation process was then performed (between coaching groups) were the participants Tp3 data (control) were coded as the Tp1 data (research group). 3) Two additional measurements were then performed, directly after the intervention had ended and three months' post coaching, see Table 7.2.

Table 7.1: Randomisation process, group 1-4.

Research design	

	Time 1 Baseline Assessment 1	Time 2 6-8 weeks Assessment 2	Time 3 12-14 weeks post coaching Assessment 3
Group 1 F2F	Begin coaching	Complete coaching	Follow-up
Group 2 Skype	Begin coaching	Complete coaching	Follow-up
Group 3 Self-coaching	Begin coaching	Complete coaching	Follow-up
	Time 1 Baseline Assessment 1	**Time 2** 6-8 weeks Assessment 2	**Time 3** 12 weeks Baseline & Assessment 3 Randomisation
Group 4 Control	Waitlist		Begin coaching

7.7.4 Intervention delivery

Three different applications of SFCBC were used in the current study: face to face (F2F), Skype/telephone and self-coaching, all built on the PRACTICE framework, see Table 7.3.

The PRACTICE framework was developed by Palmer (2011) and consists of seven steps. The framework is built on a solution-focused cognitive behavioural coaching model. The 'P' in the model can represent a number of different items that the problem solver may wish to tackle; for example, 'Problem identification', 'Performance-related issue' or 'Preferred outcome'. The 'R' represents 'Realistic, relevant goals' and the 'A' represents 'Alternative solution(s) generated'. 'C' stands for 'Consideration of the consequences' and 'T' is 'Target the most feasible solution(s)', as not all immediate solutions are easy to implement. The 'I' and the 'C' are one step combined and represents 'Implementation of the Chosen solution(s)'. Finally, 'E' is for 'Evaluation', (see Chapter 3).

Table 7.2: Applications of the PRACTICE framework.

Solution focused cognitive behavioural coaching (SFCBC)		
Application The PRACTICE framework		
Virtual – self-coaching programme	Skype	Face to face
Coaching delivered in the form of a virtual computer program.	Coaching delivered virtually by Skype within the company network.	Coaching delivered meeting the coachee, face to face.

Face-to-face coaching: performed in a setting involving a coaching psychologist and a coachee meeting face to face in one location.

Skype/telephone coaching: conducted by using the telephone or the Skype application. Skype coaching is a similar method to telephone coaching and can involve both audio and visual contact between the coach and coachee. In this current study however, only Skype with audio was used, to enable similar conditions as telephone coaching. The telephone was also used as a 'back-up' technology in cases where for example, the network experienced connection problems or there were issues with the Skype app in the computer environment.

Self-coaching: To create a logic framework with a structured action-oriented coaching process otherwise given by a live coach, five different segments were built into the program (see Appendix N), The self-coaching process was guided through written questions. and the programme was only used on the participants own computer, meaning the information was not stored somewhere else. An example of how to use PRACTICE is also provided to the participants before coaching. The participants are asked to keep a record on how many times they used the material.

1) The introduction focused mainly on the PRACTICE, (see chapter 3) and SMART (Doran, 1981) models, but also informed about well-being, stress and its relationship to issues at work. Other areas mentioned were the importance of dedicating time to working with and completing the assignments and minimizing disturbance from the environment. Information was provided that the program was free to use as many times as needed and a time estimate of 20 minutes was suggested to complete the program.

2) The second section of the program describes a set of work-life examples of topics as well as the process of working through the seven step coaching session together with the goal setting and rating process.

3) In the information section data security and privacy was explained and it was recommended to save or print out a copy of each self-coaching session to keep for personal record. Support information was also provided.

4) The coaching section consisted of the seven different modules following the structure of the PRACTICE framework. On each page information of that specific stage of the framework was set out with questions to help participant completion. Some stages of

the self-coaching process also involved using a 'success rating' ranging from one to ten to help create awareness of how close the coachee was to reaching that particular goal.

5) A GAS spreadsheet was included in the last section on evaluation. When the participant finished the self-coaching for one particular area he/she was asked if they wanted to finish the coaching session, continue with another area or return at a later time to resume the self-coaching.

Results from the previous pilot study had showed the need for additional control measures for continuous follow-ups of how many times the programme had been used and when the self-coaching was finished. The researcher and the participant in the self-coaching group booked an introduction (Skype) meeting, ranging from 30 minutes to 1 hour, were the method and material was explained further. Next step involved bookings of a series of follow - up meetings, booked in the company Microsoft Outlook programme. The aim of the follow-up meetings, 5-10 minutes long, was to keep a record on how many times the programme had been used, and if the coachee had taken a break in the self-coaching, and in that case for what reason and finally if they had finished the self-coaching.

7.7.5 Security and privacy

Skype is part of the Microsoft toolbox and is in use within the global company's own secure network, where all the virtual meetings, calls, and conversations take place. There is no monitoring of employee's conversations within the network. The data and online questionnaires were hosted and stored on Survey Monkey a well-known online questionnaires service company with a secure server outside the company network.

7.8 Data Analysis

Descriptive statistics and a combination of quantitative and qualitative analysis were performed in order to investigate the hypothesises. First, the rationale for the choice of a mixed method design is described followed by information on the qualitative data analysis. Lastly, the quantitative data analysis is outlined including sample size justification, power calculations and assumption testing.

The rationale for the mixed method design, including qualitative data, was to enable the collection of goals and goal attainment scores from the GAS questionnaire to cross-reference with data concerning work factors from the Stress Indicator Tool (HSE, 2002). This would permit a broader range of data collection, generate more

comprehensive results and complement the quantitative data. Another aim was that the data would clarify any differences or similarities between the coaching applications in terms of goals chosen. Due to time restrictions in the PhD programme, this cross-reference could not be performed and only the most frequently reported goal area was documented in this thesis.

7.8.1 Qualitative data analysis

A frequency word count was performed using Nvivo 11, regarding the first goal documented in each coaching intervention for all groups. The goals selected by the participants reflected areas appraised as important to sustain or increase well-being at work. The goals and corresponding rating were clustered into main themes. The transcripts were worked through and processed based on this criterion, and categories were deduced step by step with the help of NVivo so-called nodes, created within the software programme to organize and classify source data. A node is a collection of references about a specific theme or another area of interest. Nodes allow the gathering of related material in one place to look for emerging patterns and ideas. In the process of reading the transcripts, pieces of information were selected and coded either at a new or at an existing node. The nodes were revised, moved, merged, or renamed within feedback loops until the list of nodes had stabilised. To organise the source data more clearly, nodes were classified into main nodes and sub-nodes. This process was also performed with an academic colleague through dialogues about the different parts of the word analytic process. Specifically, selected goals served as overall main nodes, which contained numerous sub-nodes, each which are able to contain their own sub-nodes.

7.8.2 Sample Size Justification

The research group was derived from a global technology company, with mostly civil engineers. It was expected to find a standard effect size of 0.60 or larger comparing the intervention groups and the control group. The statistical power was originally calculated to 95 % given a two-sided alpha of 0.05, the research groups were determined to 27 participants each. Due to study restrictions, the statistical power was later recalculated down to 80% which is an acceptable power for a study (Cohen, 1988) to 20 participants.

7.8.3 Power calculations and power analysis

The priori power calculation performed based on the fact that it was not possible to replicate a study. The only study identified using power calculations in coaching

research was a study performed by Grant (2003) exploring a non-clinical population and the effect of, life coaching on college students well-being. This study differed from the cognitive behavioural method used in the current study, but there were similarities in the design. Grant (2003), reports life coaching's impact on stress, effect size 0.69, which showed similar effect sizes as study 1: *d*= 0.60. Effect sizes are more commonly reported by cognitive psychotherapy research and Grant (2003) reference research from cognitive behavioural psychological treatments (Ergene, 2000) that found a "mean effect size of *d* = 0.65 for anxiety programs, and effect sizes for psychological treatments for depression range from *d* = 0.28 to *d* = 1.03 (e.g., Febbraro & Clum, 1998; Reinecke, et al., 1998)" (Grant, 2003, p. 260). Based on the data on effect sizes from previous research both in CBT and CBC, the presumed effect size for the study was estimated to *d*=.60. The non-clinical population would be measured on a possible increase in experienced well-being and decrease in signs of strain and the research group could potentially already be experienced high levels of well-being when entering the study similar to Grants study (2003). One hypothesis in the current study was also that the intervention would affect the participants own experience of perceived work stress factors in relation to the work environment. No other studies were found concerning coaching effects on those particular variables and therefore the same effect size was hypothesised for those sets of variables. A first statistical power calculation was performed for sample size estimation, based on data from (Grant, 2003). The effect size (ES) calculated for the current study was estimated to 0.60, considered to be large using Cohen's (1988) criteria. With $\alpha = 0.05$ and 1-β err prob = .80., the projected sample size needed with this effect size (GPower 3.1) was approximately $n = 33$ for between/within group comparison. It was estimated that the proposed sample size of *n*=33 would be adequate for the main objective of this study and would also allow for expected attrition and additional objectives of controlling for possible mediating /moderating factors/subgroup analysis. A second sensitivity power analysis was performed later during the data collection phase, due to changing circumstances relating to time constraints of the planned research process, and relatively high attrition rates in one of the research groups (self-coaching). Due to time constraints, a second sensitivity analysis was performed, determining what level of effect that could be expected to be found with the subjects in the study. Power analysis for a MANOVA with four levels and three repeated measurements was conducted in G*Power to determine a sufficient sample size using an alpha of 0.05, a power of 0.80, and a $f = 0.60$ (Faul et al., 2013). Based on these assumptions, the desired sample size was determined to 20.

Additionally, when study time restrictions impacted time point 3 measurements for parts of the group, yet another power analysis was performed based on repeated measurements of ANOVA (within-between effect). Power analysis for a repeated measure of ANOVA with four levels (application group, including control) and one dependent variable was conducted in G*Power to determine a sufficient sample size using $\alpha = 0.05$, a power of 0.80, and effect size, $f = 0.50$ (Faul et al., 2013). The projected sample size needed with this effect size was approximately $n = 16$.

7.8.4 Primary and secondary outcomes

The primary outcome measures for the study was the investigation into different applications of coaching and the potential effect on well-being, measured through psychological and subjective well-being. Another objective was to investigate if goal attainment scores differentiated between the three research groups, and to describe the actual goals and solutions worked with during the SFCBC, in short, what individual actually wanted to accomplish to increase their well-being at work. Secondary outcomes explored were if coaching interventions affected employees perceived risk factors at work.

7.9 Assumption testing

A repeated mixed within and between-subjects design MANOVA was first planned to be used in the study, but due to study restrictions with smaller research groups ANOVA and in cases with non-normality, Friedman's ANOVA with post hoc test was used as statistical tests. Additionally, depending on assumption testing of normality and outliers, linearity, homogeneity of variance and covariance. The repeated measurements of ANOVA were used to enable comparisons with-in subject's and between-subjects effect (between application groups, independent variable) to determine if respondents differed on the dependent variables (DV) measured over time.

RQ1: Is there a statistical significant difference in participants psychological and subjective well-being based on the type of coaching intervention (face to face, Skype and self-coaching) compared to a control group, measured across time?

H_{01}: Face to face, Skype and self-coaching participants, do not statistically differ in terms of the linear combinations of psychological well-being as measured by the Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995) compared to a control group, over time.

H_{02}: Face to face, Skype and self-coaching participants, do not statistically differ in terms of the linear combinations of subjective well-being measured by Satisfaction with Life as a Whole (Diener, et al., 1985).

H_{03}: Face to face, Skype and self-coaching participants, do not statistically differ in terms of the linear combinations of personal well-being as measured by the Personal Wellbeing Index (International Wellbeing Group, 2013).

RQ2: Is there a statistical significant difference in participant's goal attainment based on the type of coaching intervention (face to face, Skype and self-coaching)?

H_{04}: Face to face, Skype and self-coaching participants, do not statistically differ in terms of goal attainment measured by Goal Attainment Scaling (Kiresuk & Sherman, 1968).

RQ3: Is there a statistical significant difference in participant's perceptions of work factors (e.g. demands and control) based on the type of coaching intervention (face to face, Skype and self-coaching) compared to a control group, measured across time?

H_{05}: Face to face, Skype, Self-coaching participants, do not statistically differ in terms of the linear combinations of demands, control, support, relationships, role and change as measured by the Management Standard Stress Indicator Tool (Cousins et al., 2004).

Chapter 8: Results

The following chapter details the results obtained by the main study. Preliminary analyses are discussed first, and then the results from each of the study's hypotheses are examined in turn. Supplementary analysis follows one of the important hypothesis test findings, and additional post-hoc, exploratory analyses are presented. The chapter concludes with a presentation of the qualitative data.

86 participants were originally recruited, through departments meeting or participant directly contacting the researcher being informed about the study from their managers or HR managers within the participating organisation (see Chapter 7). The study was performed during the time period 2016-2017 with a number of adaptations performed during the data collection phase, due to feedback from the organisation and participant's attrition rates. Higher attrition rates in the self-coaching and control condition were noted, largely consistent with the finding in study 2, (see Chapter 6). The changes performed during the course of the study were: the control group was originally designed as a randomised control condition alongside the experimental groups. After the time in control had ended, the participants were offered to participate in one of the research groups. A change in conditions was performed approximately halfway into the data collection phase, by transforming the randomised control group into a 'normal' control group by recruiting participants that had similar working conditions and roles as the experimental groups. 54% (n=13) were randomly assigned to a waiting list control condition, and 46% (n=11) recruited as a 'normal' control group. The part of the randomised control group when later (after a second randomisation) assigned to the self-coaching group (n=4) showed higher attrition rates, 100%. Changes were also performed due to feedback from leaders in the organisation during the recruitment phase. The feedback centred around the randomisation process and employees that potentially might need or want to participate in the face to face or Skype experimental groups to handle possible strain in the job, potentially would be offered a waiting list control group or a self-coaching method.

Furthermore, regarding teams that joined as groups, some team members received face to face coaching while others received the self-coaching programme, where the latter method was by some seen a less motivating. Adaptations were also made due to the researcher's personal circumstances in relation to time restrictions in the PhD

programme. These changes affected the number of participants who were actively recruited to the originally planned rolling recruitment process. Furthermore, the time restrictions in the PhD programme resulted in that the data collection phase at time point 3, had to be foreclosed, resulting in missing data. Lastly, study restrictions, effected the planned content analysis (Nvivo 11), and the results were not analysed in full. Only the first documented goal was chosen and only the main goal area that emerged from the analyse was further explored. However, the goal rating assessment was performed on 1-3 goals/participant.

8.1 Data Collection

The total sample (*n*=75) represents a small proportion of the employees in the participating global company (*N*=45.000), represented in 100 countries worldwide. The sample consists mainly of Swedish white-collar employees, employed in Sweden. 76% of the sample consisted of civil engineers.

8.1.1 Missing values analysis

Little MCAR test was performed on missing values (psychological well-being, personal well-being and satisfaction with life) in the data set χ^2 = 80.283, DF = 103, p = .952. For the secondary objective, work factors were analysed, and the results showed χ^2 = 53.584, DF = 77, p = .981. The null hypothesis could not be rejected that stated that missing values are random. Based on this analysis, the missing values were completely random, and 'missingness' is assumed not to matter for the analysis. List wise deletion of observations with missing values was therefore performed at time point 3. Although if dropping MCAR cases appreciably reduces sample size, standard errors will be increased, increasing the chance of Type II error.

8.2 Intervention Fidelity

The self-coaching group generally had higher attrition rates and especially the group of participants from the randomised control group, that entered the self-coaching condition after a second randomisation. This affected the sample size of the self-coaching group compared to the other research groups and consequentially the planned statistical analysis and method. The timeline estimated for the coaching interventions were planned to be approximately 6-8 weeks, but some of the interventions (face to face, Skype and self-coaching) were ongoing for up to 16 weeks (approximately 25% of the sample). The reasons for the prolonged intervention time, were: rebooking's and

difficulties in finding free time to reschedule, current work demands, upcoming project deadlines, vacations and sick leave. Furthermore, the goal attainment process took a longer time to be completed than initially planned. Three participants that entered the study were transferred to the company health care for further assistance after screening.

8.3 Preliminary Data Management

This section first contains a description of the complete data set, collected from all groups combined and preliminary analysis performed to detect possible confounding variables. Followed by the results of the data analysis conducted to address the different research hypothesis. The presentation of the data analysis and hypothesis testing was divided into three main sections:

1) Psychological well-being (signs of stress, depression and anxiety), Subjective well-being (Satisfaction with Life & Personal well-being).
2) Work factors (Demands, Control, Manager support, Peer support, Relations, Role & Change).
3) Goal attainment, and the results from the Nvivo content analysis.

8.3.1 Descriptive statistics Timepoint 1

The descriptive statistics for all the SFCBC groups: Face to face, Skype and Self-coaching were combined for a baseline assessment of the experimental groups, see Table 8.1. The combined results show that for the variable Psychological well-being (depression, anxiety and stress) all scores were classified in the normal range or in other words, the lowest symptom ranking (DASS-21, Lovibond & Lovibond, 1995): Depression; *M*=4.39, *SD*=5.07, Anxiety; *M*=3.36, *SD*=4.30, Stress; *M*=8.53, *SD*=6.03. For the variable Satisfaction with Life as a Whole scale (SWLW) (Diener, et al., 1985), the score was represented in the fifth rank *M*=26.3, *SD*=5.00 (25- 29: 'high score') out of six, were the sixth rank represent 'very high score – highly satisfied'. Diener (2006) describe individuals scoring at this rank as "most people in this high-scoring range, life is enjoyable, and the major domains of life are going well – work or school, family, friends, leisure, and personal development" (p. 1). For the variable personal well-being (Personal Wellbeing Index) the score from the group was represented (*M*=77.3, *SD*=11.4) in the normative range for Western Countries means, 70-80 points (International Wellbeing Group, 2013).

Table 8.1: Descriptive Statistics for Complete Sample (includes experimental groups & control) Characteristics Time Point 1

Variable	*n*	*M*	*SD*
Psychological well-being			
Depression	75	4.39	5.07
Anxiety	75	3.36	4.30
Stress	75	8.53	6.03
Satisfaction with Life	74	26.3	5.00
Personal well-being	74	77.3	11.4
Work factors			
Demand	73	3.43	0.61
Control	73	3.84	0.49
Manager support	73	3.74	0.60
Peer support	73	3.98	0.64
Relations	73	4.12	0.56
Role	73	3.80	0.64
Change	73	3.27	0.80

Note: Psychological well-being (depression, anxiety & stress) = DASS-21 scale; Satisfaction with Life = Satisfaction with Life as a Whole scale. Personal well-being =Personal Wellbeing Index scale; Work Factors (demand, control, support, relations, role & change) = HSE-MS Indicator Tool scale. (*N*=73-75)

For the variable Work Factors (demand, control, support, relations, role & change) measured through the HSE-MS Indicator Tool (Cousins et al., 2004), the results indicated that all scores were above or at the 80th percentile (top 20% of benchmark compared to other companies, 'Doing very well') apart from work factor Role, scoring below the 20th percentile (*M*=3.80, *SD*=0.64) (Health & Safety Executives, 2017).

8.3.2 Descriptive analysis of the control group

A descriptive analysis of the control group (*N*=21) was performed across time points (Tp) concerning the independent variables: role, gender and profession to determine the representativeness of the sample. Three cases were removed due to non-response at Tp2. Table 8.2 displays the descriptive statistics for the sample characteristics. The group consisted of 52.4% engineers at Tp1 & Tp2 and 47.1 % at Tp3. The role, employees 66.7% at Tp1 & Tp2, and 70.6% at Tp3. Gender female 52.6% at Tp1 & Tp2, and 58.8% at Tp3.

Table 8.2: Descriptive Statistics for Control Sample Characteristics, Time point 1-3.

	Time 1		Time 2		Time 3	
Variable	Frequency	Percent	Frequency	Percent	Frequency	Percent
Profession						
Engineers	11	52.4	11	52.4	8	47.1

HR	10	47.6	10	47.6	9	52.9
Role						
Leaders	7	33.3	7	33.3	5	29.4
Employees	14	66.7	14	66.7	12	70.6
Gender						
Male	10	47.6	10	47.6	7	41.2
Female	11	52.6	11	52.6	10	58.8
Total	21	100%	21	100%	17	100%

Preliminary analyses were conducted using Pearson's Product-Moment Correlation Coefficient 2-tailed test. First the demographic variables were correlated with the dependent variables (DV) baseline scores on all groups combined: Psychological well-being (depression, anxiety & stress), Subjective well-being (Satisfaction with Life & Personal wellbeing), Work factors (Demands, Control, Manager support, Peer support, Relations, Role & Change), to determine whether or not these variables unintentionally influenced the outcome of the study. Table 8.3 presents the correlations between age, role, and gender with the dependent well-being variables and Table G1 (see, Appendix G) presents the work factor variables. A significant negative correlation was detected between, Role and DV 'Satisfaction with Life' (r =-.39) and DV 'Personal Well-being' (r = -.34), p <.01. There was a significant positive correlation between Gender and DV 'Satisfaction with Life' (r =.27) and DV 'Personal Well-being' (r = .26), p <.05.

Table 8.3: Correlations of Demographic Variables: Depression (Dep), Anxiety (Anx), Stress, Satisfaction with Life (SL), Personal Well-being (PW).

Demographic Variable	Dep	*p*-value	Anx	*p*-value	Stress	*p*-value	SL	*p*-value	PW	*p*-value
Gender	.02	.90	.02	.88	.09	.42	.27*	.020	.26*	.025
Age	.08	.48	.03	.82	.13	.27	-.08	.52	-.01	.92
Role	.18	.13	.01	.94	.01	.94	-.39**	.001	-.34**	.003

Note: *N* ranged from 73-75. Correlations are 2-tailed. ** correlation significant < .01, * correlation significant < .05.

The Demographic Variable Gender was negatively correlated to DV Work Factor 'Control', p <.05. Demographic variable Age was positively correlated to DV Work Factor 'Role', p <. 01, and finally demographic variable Role were negatively correlated to DV Work Factor 'Role' and 'Change', p <.05.

8.4 Descriptive Statistics

A total of 86 participants were recruited into four conditions, face to face coaching: *n*=22, Skype coaching: *n*=21, Self-coaching: *n*=19 and control: *n*=24. 75 individuals (39 women, 52.0%) participated in the study by answering the questionnaires at Tp2. The largest proportion of participants were between the ages of 30-39 (*n* = 34, 45.3%), and the majority of participants had a role of employee (technical project leaders, civil engineers and Human Resource personnel) (*n* = 49, 65.3%). The largest group by profession were civil engineers 76% (*n*=57). Participants were approximately evenly distributed in the face to face, Skype, and control groups. However, there were only 11 participants in the self-coaching group (14.7%). Table 8.4 displays the descriptive statistics for the sample characteristics.

Table 8.4: Descriptive Statistics for Sample Characteristics time point 2, Coaching method, Gender, Age and Role

Variable	Frequency	Percent
Coaching application		
Face to face	22	29.3
Skype	21	28.0
Self	11	14.7
Control	21	28.0
Gender		
Male	36	48.0
Female	39	52.0
Age		
18-29	11	14.7
30-39	34	45.3
40-49	18	24.0
50-59	12	16.0
Role		
Leader	26	34.7
Employee	49	65.3

Note: *N*=75.

The largest proportion of the face to face and Skype group completed five coaching sessions (*n* =16). The number of follow-ups concerning the self-coaching group ranged from two to five, see Table 8.5. A total number of 169 coaching sessions and 37 follow-ups were performed over the course of the study 2016-2017. Additionally, 86 introduction meetings were held and a total number of 78 reschedules of coaching sessions or follow-ups were performed. A total number of 140 individual reminders (survey & study agreements) were administrated during the study.

Table 8.5: Descriptive Statistics for Sample Characteristics on number of coaching sessions.

Variable	Frequency	Percent
Number of coaching sessions		
Face to face coaching		
2 sessions	1	4.5
3 sessions	5	22.7
4 sessions	7	31.8
5 sessions	9	40.9
Skype coaching		
2 sessions	3	14.3
3 sessions	6	28.6
4 sessions	1	23.8
5 sessions	7	33.3
Self-coaching		
2 follow ups	3	27.3
3 follow ups	3	27.3
4 follow ups	3	27.3
5 follow ups	2	18.2

Note: Face to face and Skype group = coaching sessions, Self-coaching = number of follow ups.

Table 8.6 displays means and standard deviations for each dependent variable at each time point. Outliers among the dependent variables were assessed using standardised values. Scores with standardised values greater than 3.29 or less than -3.29 were considered outliers and replaced with the highest or lowest non-outlying value for each variable, as recommended by Tabachnick and Fidell (2013). A total of ten outliers were identified and replaced: one for depression (Time 2), one for depression (Time 3), one for anxiety (Time 2), one for stress (Time 2), one for quality of life (Time 2), one for quality of life (Time 3), one for personal well-being (Time 3), one for manager support (Time 1), and two for role (Time 2).

Table 8.6: Means and Standard Deviations for Well-being, Dependent Variables by Time and Group

	Time 1			Time 2			Time 3		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Depression									
Face to face coaching	22	4.45	5.24	22	3.55	2.89	20	5.40	5.07
Skype coaching	21	4.86	5.61	20	4.70	4.91	17	4.59	5.47
Self-coaching	11	4.91	5.01	11	2.73	1.85	8	7.25	5.23
Control	21	3.57	4.61	21	4.76	5.04	17	4.94	5.39

Anxiety									
Face to face coaching	22	3.45	4.10	22	1.27	1.58	20	1.90	2.20
Skype coaching	21	3.05	4.50	20	1.70	2.77	17	2.00	2.74
Self-coaching	11	2.18	1.89	11	1.45	1.57	7	2.29	3.55
Control	21	4.19	5.21	21	3.14	4.76	17	3.29	4.63
Stress									
Face to face coaching	22	9.27	7.32	22	8.82	5.15	20	9.20	6.66
Skype coaching	21	7.43	3.91	20	6.70	4.37	17	6.47	4.33
Self-coaching	11	8.91	4.59	11	6.18	3.95	7	6.86	3.98
Control	21	8.67	7.11	21	7.81	7.29	17	9.65	7.98
Quality of Life									
Face to face coaching	21	27.90	4.01	22	28.27	4.93	20	28.55	4.76
Skype coaching	21	25.86	3.84	20	26.50	4.59	18	26.72	3.74
Self-coaching	11	26.09	5.11	11	26.27	4.61	8	28.50	4.18
Control	21	25.33	6.58	20	26.60	5.32	19	27.84	3.99
Personal Well-Being									
Face to face coaching	21	78.44	12.80	22	78.29	11.75	20	81.14	11.65
Skype coaching	21	75.37	11.02	21	80.01	10.90	18	79.55	9.88
Self-coaching	11	77.01	11.51	11	80.13	11.75	8	79.32	9.01
Control	21	78.10	10.64	20	78.55	9.73	19	79.58	10.21

8.5 Statistical Analysis

For hypothesis testing, a combination of parametric and non-parametric tests was used to analyse the data. The rationale for the combination of statistical methods was that some of the experimental groups (time point 3) were smaller than originally planned and performed statistical power calculations. Preliminary analyses with Pearson's Product-Moment Correlation Coefficient 2-tailed test revealed a number of significant correlations between the independent and dependent variables at baseline, which advocated further examination by combining research groups or breaking down data into smaller groups. The post hoc analysis and testing of post hoc hypothesis are presented last in the result section. Repeated-measures multivariate analysis of variance (MANOVA), repeated-measures analysis of variance (ANOVA) was utilised to explore potential interactions of the between-subject factors as predictors of the independent-dependent variable coaching application. The non-parametric Friedman's ANOVA test of differences among repeated measures, with post-hoc analysis performed with Wilcoxon signed-rank test, was conducted with a Bonferroni correction applied to explore samples that failed to meet the assumptions of the parametric tests.

8.6 Hypotheses Tests

The testing of the study's hypothesis will be presented after each statistical analysis.

8.6.1 Psychological well-being and coaching application

A repeated-measures multivariate analysis of variance (MANOVA) was conducted to compare the experimental groups (face to face, Skype, self-coaching) and control on the dependent variables related to psychological well-being (depression, anxiety, and stress) across time. According to Tabachnick and Fidell (2013), MANOVA can be conducted when cell sizes are small, as long as the number of dependent variables does not exceed the number of cases in the smallest cell. In these analyses, the number of dependent variables did not exceed the number of cases in the smallest cell. Additionally, the *F* statistic tends to be robust to violations of assumptions in the presence of unequal cell sizes when the error degrees of freedom exceed 40 (Field, 2013). Prior to the analysis, the assumptions of normality, homogeneity of variance, and sphericity were assessed. Normality tests showed data distributed within the acceptable range for skewness and kurtosis +1.5 to -1.5 (Tabachnick & Fidell, 2013). Normality was assessed by conducting Shapiro-Wilk tests on each dependent variable within each experimental group. These tests revealed that normality was not met for all experimental groups (*p*-values < .05). Homogeneity was assessed by conducting Levene's tests and Box's M test. These tests revealed that homogeneity of variance was not met for all dependent variables (*p*-values < .05). Sphericity was assessed by conducting Mauchly's tests. These tests revealed that the sphericity assumption was met (all *p*-values > .05). Because the assumptions of normality and homogeneity of variance were not met, the Pillai's Trace statistic was used for the analysis, as this statistic is the most robust against violations of these assumptions (Warne, 2014).

Table 8.7 displays the results of the repeated-measures effects of the MANOVA. The main effect of time was significant, F (2, 55) = 3.18, p = .049, indicating that the dependent variables related to psychological well-being significantly changed over time. Pairwise comparisons were conducted to determine the exact nature of this effect. The pairwise comparisons revealed that psychological well-being at Time 1 (M = 5.75, SE = 0.62) was significantly higher (e.g. lower PWB) than at Time 2 (M = 4.73, SE = 0.49, p = .020). The time x group interaction was not significant, F (6, 112) = 0.60, p = .727, indicating that the change over time in the dependent variables related to psychological well-being did not differ by experimental group. There was also no significant between-subjects main effect of group, F (3, 56) = 0.32, p = .809, indicating that scores across all time points on the dependent variables related to psychological well-being did not differ by experimental group. The individual variables within PWB (DASS-21) Depression,

Anxiety and Stress were also examined, and no significant differences between the experimental groups were found.

Table 8.7: Repeated-Measures Effects for MANOVA on Psychological Well-Being (DASS-21).

Effect	Pillai's Trace	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	0.10	3.18	2	55	.049	0.10
Time x Group	0.06	0.60	6	112	.727	0.03

Hypotheses 1, which stated that a significant positive decrease will be observed in measures of psychological well-being (depression, anxiety and stress) at the completion of the intervention period and three months' post coaching, in all three conditions (face to face, Skype and self-coaching) compared to control, was not supported by repeated-measures effects, MANOVA

8.6.2 Subjective well-being and coaching application

Subjective well-being was measured with two separate scales, Satisfaction with Life Scale (SWLS) and Personal Wellbeing Index (PWI). First, the results from the SWLS is presented, followed by the statistical analysis of the PWI scale.

8.6.2.1 Satisfaction with Life and coaching application

A repeated-measures ANOVA was conducted to compare the experimental groups (face to face, Skype, self-coaching) and control) on subjective well-being - quality of life, across time. Prior to the analysis, the assumptions of normality, homogeneity of variance, and sphericity were assessed. Normality tests showed data distributed within the acceptable range for skewness and kurtosis +1.5 to -1.5 (Tabachnick & Fidell, 2013). Normality was assessed by conducting Shapiro-Wilk tests on the dependent variable within each experimental group. These tests revealed that normality was not met for all experimental groups (p-values < .05). Homogeneity was assessed by conducting Levene's tests and Box's M test. These tests revealed that homogeneity of variance was met for all variables (p-values > .05). Sphericity was assessed by conducting Mauchly's test. This test revealed that the sphericity assumption was not met (p < .05). Because the assumptions of normality and sphericity were not met, the Greenhouse-Geisser correction was applied to the statistical test, as this correction is the most robust against violations of these assumptions.

Table 8.8 displays the results of the repeated-measures effects of the ANOVA. The main effect of time was significant, F (1.76, 103.54) = 4.94, p = .012, indicating that quality of life significantly changed over time. Pairwise comparisons were conducted to determine the exact nature of this effect. The pairwise comparisons revealed that quality of life was significantly higher at Time 2 (M = 27.01, SE = 0.68) and Time 3 (M = 27.87, SE = 0.57) compared to Time 1 (M = 26.35, SE = 0.70, p-values < .05). The time x group interaction was not significant, F (5.27, 103.54) = 0.94, p = .460, indicating that the change over time in the quality of life did not differ by experimental group. There was also no significant between-subjects main effect of group, F (3, 59) = 0.61, p = .620, indicating that scores across all time points on satisfaction with life did not differ by experimental group.

Table 8.8: Repeated-Measures Effects for ANOVA on Satisfaction with Life.

Effect	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	4.94	1.76	103.54	.012	0.08
Time x Group	0.94	5.27	103.54	.460	0.05

There was no evidence to reject the null hypothesis 2a which stated that no significant change will be observed in measures of satisfaction with life, at the completion of the intervention period and three months' post coaching, in all three conditions (face to face, Skype and self-coaching) compared to control.

8.6.2.2 Personal Well-being and coaching application

Prior to the analysis, the assumptions of normality were assessed. Normality tests showed data distributed outside the acceptable range for skewness and kurtosis +1.5 to -1.5 (Tabachnick & Fidell, 2013). The Shapiro-Wilk tests on the dependent variable within each experimental group revealed that normality was not met for all experimental groups (p-values < .05). Because the assumptions of normality were not met, a non-parametric Friedman's ANOVA was performed to analyse differences among repeated measures to determine if there were differences between the experimental and control groups across time. Pairwise comparisons showed a significant increase in well-being in the face to face $\chi^2(2) = 8.347$, $p = 0.015$ and Skype group, $\chi2(2) = 8.269$, $p = 0.016$ compared to the self-coaching and control group. Post-hoc analysis with Wilcoxon signed-rank test was conducted with a Bonferroni correction applied which revealed statistically significant differences in personal well-being in the Skype group between Tp1 (M = 75.4, SD=11.0) and Tp2 (M = 80.0,

SD=10.9), Z = -2.717, p = 0.007. Between Tp1 to Tp3 (*M* = 79.6, *SD*=9.88), Z = --2.701, p = 0.007. Tp2 and Tp3: Z = -.026, $p > 0.05$. Post-hoc analysis of the face to face group revealed an increase in personal well-being, but the difference was *ns*. Wilcoxon signed-rank test showed between Tp1 (*M* = 78.4, *SD*=12.8) and Tp3 (*M* = 81.1, *SD*=11.7) Z = -1.832, p = 0.067. Comparisons performed between Tp2 (*M*=78.3, *SD*=11.8) and Tp3, (*M* = 81.1, *SD*=11.7), Z=-1.873, p = 0.061.

There is evidence to partly reject the null hypothesis 2b with significant evidence to support the Skype application. There was a significant increase in personal well-being (SWB) scores over time, which suggests that participants personal well-being was increased after participating in the Skype application of the SFCBC.

8.7 Secondary objective work factors and coaching application

The hypothesis test of the secondary objective in the study, examining the effects of SFCBC on perceived work factors was performed. It was predicted that a significant positive decrease would be observed in perceived psychosocial work factors (demands, control, support, relationships, role and change) measured at completion of the intervention and three months' post coaching.

8.7.1 Work factor Demand and coaching application

A repeated-measures analysis of variance (ANOVA) was conducted to compare the experimental groups (face to face, Skype, self-coaching, and control) on demands across time. Prior to the analysis, the assumptions of normality, homogeneity of variance, and sphericity were assessed. The data was distributed within the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). Normality was assessed by conducting Shapiro-Wilk tests on the dependent variable within each experimental group. These tests revealed that normality was met for all experimental groups (p-values > .05). Homogeneity was assessed by conducting Levene's tests and Box's M test. These tests revealed that homogeneity of variance was met for all variables (p-values > .05). Sphericity was assessed by conducting Mauchly's test. This test revealed that the sphericity assumption was not met ($p < .05$). Because the assumption of sphericity was not met, the Greenhouse-Geisser correction was applied to the statistical test, as this correction is the most robust against violations of this assumption.

Table 8.9 displays the results of the repeated-measures effects of the ANOVA. The main effect of time was not significant, F (1.74, 88.57) = 2.97, p = .064, indicating that demands did not significantly change over time. The time x group interaction was significant, F (5.21, 88.57) = 2.48, p = .036, indicating that the change over time in demands differed by experimental group. Pairwise comparisons were conducted to determine the exact nature of this effect (see Appendix D). The pairwise comparisons revealed that there were significant changes over time only in the Skype group (Time 1 to Time 2: p=.042, Time 1 to Time3: p=.009. The self-coaching was *ns* over time. (Time 1 to Time 2: p=.020, Time 1-Time 3, p=*ns*).

Table 8.9: Repeated-Measures Effects for ANOVA on Demands

Effect	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	2.97	1.74	88.57	.064	0.06
Time x Group	2.48	5.21	88.57	.036	0.13

There was partly evidence to reject the null hypothesis 5a with significant evidence to support the Skype SFCBC application. There was a significant positive increase in demand scores over time which suggests that participant's perceptions of work demands were decreased after participating in the Skype application.

8.7.2 Work factor Control, Support, Relationship, Role and Change.

A repeated-measures analysis of variance (ANOVA) was conducted to compare the experimental groups (face to face, Skype, self-coaching) and control on Control, Manager and Peer support, Relationships, Role and Change across time. No significant effects were found concerning these variables, see Appendix E.

There was no evidence to reject the null hypothesis 5b-g which stated that no significant differences will be observed in measures of Control, Support, Relationships, Role and Change, at the completion of the intervention period and three months' post coaching, in all three conditions (face to face, Skype and self-coaching) compared to control.

8.8 Post hoc analysis Personal Well-being and Satisfaction with life

Preliminary analysis conducted with Pearson's Product-Moment Correlation Coefficient 2-tailed test on the whole sample at time point 1, revealed that demographic variable Role was negatively correlated to DV 'Satisfaction with Life' (r =-.39) and 'Personal Well-being' (r = -.34), p <.01. Furthermore, Gender was positively correlated 'Satisfaction with Life' (r =.27) and 'Personal Well-being' (r = .26), p <.05. The post

hoc findings advocated further analysis and the forming and testing of additional post hoc hypothesis. The forming of demographic groups to further analyse post hoc findings and possible effects, the research groups was combined (Face to face, Skype and self-coaching) with the effect that the control group either became too small or not representative for comparison against the research groups. Therefor the control group comparison was removed. The post hoc section will be dispositioned in the following manner, first the descriptive statistics relevant to subjective well-being (SWB) will be presented followed by parametric and/or non-parametric analysis for each of the demographic variables. Lastly an analysis of the separate coaching groups will be performed. SWB was measured by Personal Wellbeing Index (PWI) and Satisfaction with Life as a Whole (SLW) scales.

8.8.1 Work role and subjective well-being

The descriptive statistics associated with Role across time are reported in Table 8.10. The scores represent all experimental groups combined (Face to face, Skype and Self-coaching). Personal well-being scores for Role: leader showed; Tp1: *M*=83.0, *SD*=9.29, Tp2: *M*=83.2, *SD*=11.7 and Tp3: *M*=83.3, *SD*=10.4. For Role: employee; Tp1: *M*=73.0, *SD*=11.5, Tp2: *M*=76.9, *SD*=10.4 and Tp3: *M*=77.7, *SD*=9.7. Satisfaction with Life scores for Role: leaders; Tp1: *M*=29.4, *SD*=2.85, Tp2: *M*=29.3, *SD*=4.08 and Tp3: *M*=30.3, *SD*=2.91. For Role: employee; Tp1: *M*=24.8, *SD*=4.08, Tp2: *M*=25.8, *SD*=4.64 and Tp3: *M*=26.1, *SD*=4.27. Both SBW scales indicates lower scores across all time points for Role: employee

Table 8.10: Means and Standard Deviations for Personal Well-being and Satisfaction with Life, by Time and Role.

	Time 1			Time 2			Time 3		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Role									
Leader PWI	21	83.0	9.29	21	83.2	11.7	19	83.8	10.4
Employee PWI	32	73.0	11.5	33	76.9	10.4	27	77.7	9.7
Leader SLW	21	29.4	2.85	21	29.3	4.08	19	30.3	2.91
Employee SLW	32	24.8	4.08	32	25.8	4.64	27	26.1	4.27

Note: PWI=Personal Wellbeing Index, SLW=Satisfaction with Life as a Whole.

A one-way repeated measures of variance (ANOVA) was conducted to evaluate the null hypothesis that there is no change in employees subjective well-being measured through personal well-being and satisfaction with life, before and after participating in

an SFCBC programme (face to face, Skype and self-coaching) across time. Prior to the analysis, the assumptions of normality were assessed. Normality tests showed the group 'employee' scores were normally distributed and within the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). Shapiro-Wilk test on the dependent variable within each time point (*p*-values > .05). Sphericity was assessed by conducting Mauchly's test. This test revealed that the sphericity assumption was met ($p > .05$).

The results of the repeated-measures effects of the one-way ANOVA for the group employees indicated that the main effect of time was significant, F (2.00, 24.0) = 4.77, $p = .018$, $\eta_p^2 = .285$. Pairwise comparisons were conducted to determine the exact nature of this effect. The pairwise comparisons revealed that personal well-being was significantly higher at Time 2 (M = 76.2, SE = 2.12) compared to Time 1 (M = 72.7, SE = 2.36, p =.023). and Time 1 compared to Time 3 (M= 77.6, SE=1.94, p =.004). Time 2 compared to Time 3 was not significant (p >.05). The results of the repeated-measures effects of the one-way ANOVA for the group employees (n=25), on satisfaction with life, indicated that the main effect of time was not significant, F (2.00, 23.0) = 4.77, p = .384, $\eta_p^2 = .080$.

There is significant evidence to reject the null hypothesis stating there is no increase in employees subjective well-being measured through personal well-being, before and after participating in an SFCBC programme. There was a significant increase in scores over time, which suggests that employee personal well-being was increased after participating in SFCBC coaching programme. Thus, there was no evidence to reject the null hypothesis concerning no change in employees SWB measured through satisfaction with life, before and after participating in an SFCBC programme.

Normality tests performed revealed that the group 'Leader' scores were outside the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). The scores were not normally distributed at all time points, Shapiro-Wilk test: p-values < .05. A non-parametric Friedman's ANOVA was performed to explore differences among repeated measures on the relationship between leaders, SF-CBC (Face to face, Skype and self-coaching) and personal well-being across time. For the role leader (n=17): Friedman's ANOVA rendered a Chi-square value of 6.281, which was statistically significant ($p < .05$). Post-hoc analysis of the group leader revealed an increase in personal well-being, but the difference was not statistically

significant. Wilcoxon signed-rank test revealed between baseline (*M* = 82.2, *SD*=10.0) and time point 2 (*M* = 82.5, *SD*=12.6) Z = -1.704, *p* > *.05*. Comparisons performed between baseline (*M* = 82.2, *SD*=10.0) and time point 3, (*M*=83.4.6, *SD*=10.0), Z=-1.139, p > .05. Results from Friedman's ANOVA on satisfaction with life rendered a Chi-square value of 4.200 which was *ns.*

Post-hoc analysis of the group leader Wilcoxon signed-rank test indicated no significant change over time in the leader's SWB measured through personal well-being and satisfaction with life. Thus, there was no evidence to reject the null hypothesis concerning no change in leaders subjective well-being measured by personal well-being and satisfaction with life, before and after participating in an SFCBC programme.

8.8.2 Gender and subjective well-being

The descriptive statistics associated with demographic variable: gender across time are reported in Table 8.11, and represent all experimental groups combined (Face to face, Skype and Self-coaching). Personal well-being scores for gender male; Tp1: *M*=72.0, *SD*=10.4, Tp2: *M*=76.0, *SD*=11.1 and Tp3: *M*=75.6.3, *SD*=10.0. For gender female; Tp1: *M*=81.7, *SD*=11.0, Tp2: *M*=82.4, *SD*=10.6 and Tp3: *M*=84.0, *SD*=9.2. Satisfaction with Life scores for gender male; Tp1: *M*=24.9, *SD*=4.01, Tp2: *M*=25.4, *SD*=4.87 and Tp3: *M*=26.3, *SD*=4.17. For gender female; Tp1: *M*=28.4, *SD*=3.71, Tp2: *M*=28.8, *SD*=4.01 and Tp3: *M*=29.1, *SD*=4.01. Both SBW scales indicates lower scores across all time points for gender: male.

Table 8.11: Means and Standard Deviations for Personal Well-being and Satisfaction with Life, by Time and Gender.

	Time 1			Time 2			Time 3		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Gender									
Male PWI	26	72.0	10.4	26	76.0	11.1	21	75.6	10.0
Female PWI	27	81.7	11.0	28	82.4	10.6	25	84.0	9.2
Male SLW	26	24.9	4.01	25	25.4	4.87	21	26.3	4.17
Female SLW	27	28.4	3.71	28	28.8	4.01	25	29.1	4.01
Control									
Male & Female PWI	21	78.1	10.6	20	78.6	9.73	19	79.6	10.2
Male & Female SLW	21	25.3	6.58	20	26.6	5.32	19	27.8	3.99

Note: PWI=Personal Wellbeing Index, SLW=Satisfaction with Life as a Whole.

A one-way repeated measures of variance (ANOVA) was conducted to evaluate the null hypothesis that there is no change in males (*n*=31) SWB measured through personal well-being, before and after participating in an SFCBC programme (face to face, Skype and self-coaching) across time. Prior to the analysis, the assumptions of normality were assessed. Normality tests showed the group 'male' scores were normally distributed within the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). Shapiro-Wilk test on the dependent variable within each time point (*p*-values > .05). Sphericity was assessed by conducting Mauchly's test. This test revealed that the sphericity assumption was met ($p > .05$).

The results of the repeated-measures effects of the one-way ANOVA for the group males indicated that the main effect of time was significant, F (2.00, 29.0) = 4.87, $p = .015$, $\eta_p^2 = .252$. Pairwise comparisons were conducted to determine the exact nature of this effect. The pairwise comparisons revealed that personal well-being was significantly higher at Time 3 *(M*= 77.4, *SE*=1.89) compared to Time 1 (*M* = 73.9, *SE* = 2.11, *p* = .011). Time 1 compared to Time 2 (*M* = 76.7, *SE* = 2.01) and Time 2 compared to Time 3 was *ns*. Normality tests performed on the DV satisfaction with life, revealed that the group male (*n*=30) was not normally distributed at all time points and outside the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). Shapiro-Wilk test: p-values < .05. A non-parametric Friedman's ANOVA was performed to explore differences among repeated measures on the relationship between male, SFCBC (Face to face, Skype and self-coaching) and satisfaction with life across time. For males: Friedman's ANOVA rendered a Chi-square value of 4.880, which was *ns*.

There is significant evidence to reject the null hypothesis stating there is no change in males SWB measured through personal well-being, before and after participating in an SFCBC programme. There was a significant increase in scores over time which suggests that males personal well-being was increased after participating in the programme. Thus, there was no evidence to reject the null hypothesis concerning no change in male subjective well-being measured through satisfaction with life, before and after participating in an SFCBC programme.

Normality tests performed on the DV personal well-being and satisfaction with life revealed that the group female was not normally distributed at all time points, and outside the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). Shapiro-Wilk test: p-values < .05. A non-parametric

Friedman's ANOVA was performed to explore differences among repeated measures on the relationship between gender female, SFCBC (Face to face, Skype and self-coaching) and subjective well-being across time. For the gender female (*n*=33), on satisfaction with life, Friedman's ANOVA rendered a Chi-square value of 6.602, which was statistically significant (*p* =.037). Post-hoc analysis with Wilcoxon signed-rank test showed no statistically significant results. Personal well-being rendered a Chi-square value of 4.656, which was *ns*.

There was no evidence to reject the null hypothesis concerning no change in females SWB measured through personal well-being and satisfaction with life, before and after participating in an SFCBC programme.

8.8.3 Leaders, gender and subjective well-being

The descriptive statistics associated with work role leader and gender across time are reported in Table 8.12, and represent all experimental groups combined (Face to face, Skype and Self-coaching). Personal well-being scores for role leader and gender: male; Tp1: *M*=77.9, *SD*=13.3, Tp2: *M*=82.4, *SD*=13.47 and Tp3: *M*=78.0, *SD*=12.9. For female: Tp1: *M*=85.0, *SD*=6.65, Tp2: *M*=83.5, *SD*=11.5 and Tp3: *M*=85.4, *SD*=9.60.

Table 8.12: Means and Standard Deviations for Personal Well-being and Satisfaction with Life, by Time, Leaders and Gender.

	Time 1			Time 2			Time 3		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Leader/gender									
Male PWI	6	77.9	13.3	6	82.4	13.4	4	78.0	12.9
Female PWI	15	85.0	6.65	15	83.5	11.5	15	85.4	9.60
Male SLW	6	27.8	3.25	6	28.3	2.25	4	29.3	1.71
Female SLW	15	30.0	2.54	15	29.8	4.62	15	30.6	3.14

Note: PWI=Personal Wellbeing Index, SLW=Satisfaction with Life as a Whole.

Satisfaction with Life for role leader and gender: Tp1: *M*=27.8, *SD*=3.25, Tp2: *M*=28.3, *SD*=2.25 and Tp3: *M*=29.3, *SD*=1.71. For female: Tp1: *M*=30.0, *SD*=2.54, Tp2: *M*=29.8, *SD*=4.62 and Tp3: *M*=30.6, *SD*=3.14. Both SBW scales indicates lower scores across all time points for male leaders.

Normality tests performed on the DV personal well-being and satisfaction with life revealed that both group female and male leaders were not normally distributed at

all time points, and outside the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). Shapiro-Wilk test: p-values < .05. A non-parametric Friedman's ANOVA was performed to explore differences among repeated measures on the relationship between female and male leaders, SFCBC (Face to face, Skype and self-coaching) and personal well-being and satisfaction with life across time. For male leaders (*n*=4), Friedman's ANOVA showed no significant results on either of the two subjective well-being scales. For gender female (*n*=15), on satisfaction with life, Friedman's ANOVA rendered a Chi-square value of 7.000, which was statistically significant (*p* =.030). Post-hoc analysis with Wilcoxon signed-rank test was *ns*. Personal well-being scores were *ns*.

There was no evidence to reject the null hypothesis concerning no change in females and male leaders SWB scores measured through personal well-being and satisfaction with life, before and after participating in an SFCBC programme.

8.8.4 Employees, gender and subjective well-being

The descriptive statistics associated with work role employee and gender across time are reported in Table 8.13, and represent all experimental groups combined (Face to face, Skype and Self-coaching). Personal well-being scores for role employee and gender: male; Tp1: *M*=70.2, *SD*=9.03, Tp2: *M*=74.1, *SD*=9.92 and Tp3: *M*=75.1, *SD*=9.62. For female: Tp1: *M*=77.5, *SD*=14.1, Tp2: *M*=81.2, *SD*=9.88 and Tp3: *M*=82.0, *SD*=8.66.

Table 8.13: Means and Standard Deviations for Personal Well-being and Satisfaction with Life, by Time, Employees and Gender.

	Time 1			Time 2			Time 3		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Employees/gender									
Male PWI	20	70.2	9.03	20	74.1	9.92	17	75.1	9.62
Female PWI	12	77.5	14.1	13	81.2	9.88	10	82.0	8.66
Male SLW	20	24.1	3.87	19	24.4	5.14	17	25.6	4.30
Female SLW	12	26.5	4.12	13	27.7	3.04	10	26.9	4.31

Note: PWI=Personal Wellbeing Index, SLW=Satisfaction with Life as a Whole.

Satisfaction with Life for role employee and gender male: Tp1: *M*=24.1, *SD*=3.87, Tp2: *M*=24.4, *SD*=5.14 and Tp3: *M*=25.6, *SD*=4.30. For female: Tp1: *M*=26.5, *SD*=4.12,

Tp2: *M*=27.7, *SD*=3.04 and Tp3: *M*=26.9, *SD*=4.31. Both SBW scales indicates lower scores across all time points for male employees.

A one-way repeated measures of variance (ANOVA) was conducted to evaluate the null hypothesis that there is no change in employee (male or female) SWB measured through personal well-being, before and after participating in an SFCBC programme (face to face, Skype and self-coaching). Prior to the analysis, the assumptions of normality were assessed. Normality tests showed the gender: male and role: employee (n=17) were normally distributed and within the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). Shapiro-Wilk test on the dependent variable within each time point (*p*-values > .05). Variable gender female employee (*n*=9) was normally distributed and within the acceptable range for skewness and kurtosis below +1.5 and above -1.5. Shapiro-Wilk test: *p*-values > .05. For the role employees and gender: male (*n*=17) and female (*n*=9), a homogeneity was assessed by conducting Levene's tests and Box's M test. These tests revealed that homogeneity of variance was met for all variables (*p*-values > .05). Sphericity was assessed by conducting Mauchly's test. This test revealed that the sphericity assumption was met (*p* > .05).

The results of the repeated-measures effects of ANOVA indicated that the main effect of time was significant, F (2.00, 23.0) = 4.12, p = .030, indicating that personal well-being changed over time. The time x group interaction was not significant F (2.00, 23.0) = .022, p = .978. Pairwise comparisons were conducted to determine the exact nature of this effect. The pairwise comparisons revealed that employees personal well-being was significantly higher at Time 3 (M = 78.7, SE = 1.95) compared to Time 1 (M = 73.8, SE = 2.42, p-values < .05). Comparison between time 1 and 2 (*M*=77.4, *SD*=2.1) and Time 2 and 3 was *ns.*

Normality tests performed on the DV satisfaction with life revealed that both group female and male employees were not normally distributed at all time points, Shapiro-Wilk test: p-values < .05. A non-parametric Friedman's ANOVA was performed to explore differences among repeated measures on the relationship between female and male employees, SFCBC (Face to face, Skype and self-coaching) and satisfaction with life across time. Male employee scores on satisfaction with life rendered a Chi-square value of 4.877, which was not statistically significant (p =.087), and female employees, Chi-square value=.600, p=.741.

There is significant evidence to reject the null hypothesis concerning that there is no change in females and male employees subjective well-being measured through personal well-being, before and three months after participating in an SFCBC programme. There was a significant increase in scores over time, which suggests that both females and male employee personal well-being was increased after participating in SFCBC coaching programme. There is no evidence to reject the null hypothesis that there is no change in both females and male employees subjective well-being measured through satisfaction with life, before and after participating in an SFCBC programme.

8.9 Goal Attainment

The goal attainment scaling (GAS) spreadsheet was incorporated in the PRACTICE framework to document the various goals that the participants worked with during the coaching intervention. 1-3/goals per participant were calculated resulting in one combined goal change score, by subtracting the baseline aggregate score from the outcome using the Turner-Stokes model (2009), see method section. The goal change scores range from – 10 to +30 where 0 represents no change in goal attainment and minus scores, less than expected. Positive scores indicate that goal attainment has been achieved as expected, more or much more than expected. The results from the three coaching groups are presented as frequencies/coaching group. In total, 44 participants, final scores were documented both continually over the course of the intervention and at time point 2 (post-coaching). Descriptive statistics were computed for the goal change scores across the three experimental conditions (see Table 8.14 and 8.15).

Table 8.14: Goal Attainment Scores by Experimental Condition.

Group	*n*	*M*	*SD*
Face to face coaching	18	15.29	7.67
Skype coaching	19	14.53	7.57
Self-coaching	7	14.29	5.35

The face to face coaching group (*n*=18) had the highest average goal attainment score (*M* = 15.29, *SD* = 7.67), and the self-coaching group (*n*=7) had the lowest average goal attainment score (*M* = 14.29, *SD* = 5.35).

Figure 8.1: Goal Attainment Scores by Experimental Condition and Frequency.

Group	Goal Change Score	Frequency	Percent
Face to face coaching	0	2	11,1
	8	1	5,6
	10	4	22,2
	18	2	11,1
	20	6	33,3
	22	1	5,6
	24	1	5,6
	25	1	5,6
	Total	18	100,0
Skype coaching	0	2	10,5
	10	6	31,6
	12	1	5,3
	16	2	10,5
	20	6	31,6
	22	1	5,3
	30	1	5,3
	Total	19	100,0
Self-coaching	10	4	57,1
	20	3	42,9
	Total	7	100,0

8.9.1 Goal attainment and number of coaching sessions/follow-ups

The three different experimental groups were further explored with descriptive statistics on subjective well-being, goal attainment and number of or follow-ups (self-coaching) coaching sessions. The descriptive data presented in Table 8.15 shows: 1) Face to face group: most frequent number of coaching sessions (4 - 5), also had a higher GAS score (*M* = 17.2 and 17.8). 2) Skype group: most frequent number of coaching sessions (3, 4 and 5), also suggested a higher GAS score (*M*= 14.0, 18.0 and 15.3). Lastly, the self-coaching group: 4-5 follow-ups indicated a higher GAS score (*M*=16.7 and 15.0). The well-being scores were not further analysed because of the small groups, but are presented as reference.

Table 8.15: Figure: Goal Attainment Scores by Experimental Condition, Frequency and SWB (Personal Wellbeing Index).

	Time 1			Time 2			Time 3			GAS
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*M*
F2F/sessions										

2	1	72.9	n/a	1	75.7	n/a	1	81.4	n/a	5.0
3	5	70.3	14.2	5	76.0	12.1	5	78.3	15.8	10.0
4	7	83.9	18.8	7	81.2	10.6	6	83.7	10.5	17.2
5	8	79.5	13.0	9	77.3	13.8	8	81.0	11.6	17.8
Skype /sessions										
2	3	81.0	11.5	3	87.7	4.54	1	85.7	n/a	10.0
3	6	77.9	10.1	6	81.2	14.6	5	81.4	8.33	14.0
4	5	67.7	9.18	5	72.0	9.35	5	70.7	6.71	18.8
5	7	76.3	12.1	7	81.4	8.12	7	83.7	10.3	15.3
SC/sessions										
2	3	80.0	16.1	3	83.8	12.3	2	80.7	9.09	10.0
3	3	77.1	8.92	3	81.9	14.0	2	77.7	10.4	10.0
4	3	73.8	12.8	3	75.7	13.6	2	77.9	15.1	16.7
5	2	77.1	16.2	2	78.6	14.1	1	84.3	n/a	15.0

8.10 Content analysis GAS goals and solutions.

A frequency word count was performed using Nvivo 11, regarding the first goal documented in each coaching intervention for all groups, see Table F1 (Appendix F). The results presented are the most frequent categories that emerged from the data. 1509 words in total were analysed. The use of Nvivo permitted the use of descriptive statistics for frequency of word occurrence that the participants used in the documented goals, collected from the GAS spreadsheet. The goals selected by the participants reflected areas appraised as important to sustain or increase well-being at work. The most frequent words used were: work (94), role (51), assignments (32), team (30) need (32) and time (32).

In line with the descriptive results from the word frequency count, the words ‘work’ and ‘role’ was most frequently used. Since ‘work role’ emerged as a central theme the different words connected to that work factor was specifically investigated. Although due to study restrictions, work role was the only factor further analysed. Other main themes, (in order of frequency) that emerged can be seen in Table 8.16.

Table 8.16: Main themes from Nvivo analysis of GAS goals.

Main themes	Description of content
1) Role	Developing and clarifying/changing role
2) Communication	Develop skills

3) Competence	Develop competencies
4) Demands	Manage /decrease demands at work
5) Personal development	The person wishes to change behaviour/feelings /thoughts or how the change is managed to attain the goal.
6) Time Management	Practically handle time issues by planning time better, and actions required to do so.
7) Strategy	e.g. systems for practically handling work efficiently, and mental strategy for increasing well-being.
8) Work Processes	Creating work processes/structure of work.
9) Work-Life Balance	Creating a balance or boundaries between work and private life.

8.10.1 Content analysis of factor work role

Two parts of the main work factor *role* were further investigated based on the GAS questionnaire in which participants first describe an important goal (stated goal) for the coaching and secondly more practically break it down into actions to attain the goal. The results from the analysis are only presented as short citations.

> **Issue:** *"Unclear role, leads to feelings of stress and less control.*
> *Goal/***Action:** *Define work assignments through talks with my team members, and becoming more aware of my boundaries" Example from participant (Theme: Role).*

The stated goal/issue described as impacting well-being was further clustered into two main parts: 1) clarifying/defining work role and 2) development of work role.

8.10.1.1 Clarifying and developing role

Unclear role; Uncertainty in role; Definition and boundary of role; Change of focus in role; Becoming safer (e.g. more confident) in work role; Demands in the work role; Create a more present leadership style in new role.

8.10.1.2 Actions to attain goal

The actions or solutions to work factor Role was spread over different themes: manager and peer support, communicating new role and definitions/boundaries to: others/manager/ or to oneself by becoming aware of the role (self-awareness). Become more self-aware of the: work role, changes and parts in the role.

Manager support

Talk to manager about the need for competence development.

Meeting with manager to clarify role further. Talk to manager about my feelings, become more clear in expressing needs, and/of support.

Peer support

Talk to other departments/teams: for cooperation and support. Reach out to other departments for cooperation and support in similar work assignments. Use support functions delegating to other teams. Connecting to others that have the competence and experience, other cross functions.

Defining, redefining role

Create a new role description. Adjust by becoming aware of and communicate boundaries in the work role. Setting boundaries in work assignments. Clarifying work role and assignments to myself and others in my work team. Stop taking responsibility for the previous role. Let go of work connected to old role. Become more confident in new role.

Increase awareness of the different parts of the role and personal development needed.

Define work assignments through talks with team members, and becoming more aware of boundaries. Using strengths in already existing competences and build new competences on my strengths. Giving feedback in a new way to my team, be more clear about activities I expect my team to perform and follow up visually. Be there for them (e.g. co-workers) practically, time to care. To educate other leaders to lead their teams.

In summary, the participants worked with a multitude of different job characteristics. For the factor Role, the data collected was categorised as belonging to the role ambiguity factor (or role stressor) as it seems to have been the most frequently described issue. The actions chosen by the participants involved initiatives to increase role clarity through manager and peer support and job-crafting initiatives. For reference, in literature job ambiguity is explained as a process that arises from a lack of information and therefore missing clarity in a specific job position. This leads employees to be uncertain about their role, job objectives, and associated responsibilities (Kahn et al., 1964). Job-crafting can be defined as the process through which employees ‘shape’ their jobs, changing their own job characteristics (Fried et al., 2007; Grant & Parker, 2009). and ‘the physical and cognitive changes individuals make in the task or relational boundaries of their work’ (Wrzesniewski & Dutton, 2001, p. 179).

8.11 Withdrawal

One person from the control group actively withdrew from the study.

8.11.1 Dropout analysis

The self-coaching and control group had higher attrition rates when responding to questionnaires, these findings are similar to the study 2 findings. Furthermore, the study restrictions effected the response rate at time point 3.

Chapter 9: Discussion

This chapter discusses how this doctoral thesis aimed to examine solution focused cognitive behavioural coaching as a preventive intervention in a work context. In Chapter 1 and 2, coaching psychology literature, occupational stress and well-being theories and psychosocial models and interventions were explored. In Chapter 3 the specific theoretical components and behavioural agents of the PRACTICE framework (PF) were investigated and defined, and in Chapter 4 psychological information communication technology was examined. Chapter 5 presented study one were the qualitative results indicated that the PF could support the participants by affecting a change in the cognitive behavioural appraisal of perceived issues at work, and facilitating the goal achievement process. Chapter 6 investigated the study design and different applications of the PF and SF coaching methods, which led to changes in design and further development of the different applications of the PF. Chapter 7-8, describes and presents results from a randomised controlled study, examining three different applications of SFCBC and effects on PWB, SWB, goal attainment and work factors over time. The aim was to investigate whether different applications of the PRACTICE framework (PF) could increase PWB and SWB; and if PF inhabiting a goal attainment (GA) process could act as a resource, moderating potential demands in the work environment.

This chapter will focus on the main study and discuss intervention effects on SWB and demands and how these effects can be explained within an occupational stress theory, more specifically the JD-R model. Specific behavioural change agents responsible for effecting SWB and Demands are also discussed in relation to goal setting theory and social problem solving theory.

It was hypothesised that all applications of SFCBC (face-to-face, Skype and computerised/self-coaching) would positively increase psychological and subjective well-being. SFCBC was also predicted to increase goal attainment equally in all three experimental groups, regardless of coaching application. Finally, it was hypothesised that a significant positive decrease would be observed in perceived psychosocial risk factors (demands, control, support, relationships, role, and change), measured at the completion of the intervention and three months post-coaching, as a direct effect of SFCBC.

The results indicated that Hypothesis 1, which stated that participants' psychological well-being would increase in parallel with decreasing signs of depression, anxiety and stress after participating in an SFCBC programme, was not supported. Similarly, Hypothesis 2a, which stated that participants' satisfaction with life would increase after participating in an SFCBC programme, was not supported. Hypothesis 2b, which stated that subjective well-being (SWB) would increase after participating in the PRACTICE programme, was partly supported. There was a significant increase in SWB scores over time in the Skype group, which suggests that participants' SWB increased after participating in the Skype application of the SFCBC. The face-to-face (F2F) and self-coaching (SC) applications were not supported.

Hypothesis 3, which stated that no significant differences would be observed between the different applications of SFCBC at the completion of the intervention period and three months post-coaching, was not supported. Hypothesis 4, which predicted that SFCBC would increase goal attainment change scores equally in all three experimental groups was not explored with non-parametric tests due to the differences in group size; however, descriptive statistics suggest that goal attainment scores increased in all conditions.

Finally, Hypotheses 5a-g stated that a significant positive decrease would be observed in perceived psychosocial risk factors: a) demands, b) control, c) manager support, d) peer support, e) relationships, f) role, g) change, measured at completion of the intervention and three months post-coaching, as direct effect of SFCBC. Hypothesis 5a) was supported by the Skype application showing mediating effects on perceived work demands over time. Hypotheses 5b-g were not supported.

Surprisingly, post-hoc findings revealed a baseline difference between male and female and between leaders' and employees' SWB, also across time and regardless of the experimental group. When combining all the females from the experimental groups, the results suggested a higher SWB score than the men; similarly, the leaders had a higher mean score than the combined employee group. Post-hoc findings suggest that both female and male employees (76% civil engineers) increased their SWB to a larger extent after participating in the PRACTICE programme than leaders, who exhibited a higher SWB across all time points. The post-hoc findings are further discussed at the end of the chapter.

The study was performed in non-clinical groups at work. Initial baseline measurements showed high levels of both psychological well-being (PWB) and SWB. Additionally, most psychosocial factors showed scores above or at the 80th percentile, the highest ranking, apart from the work factor role, which scored the lowest ranking, below the 20th percentile (HSE, 2017). Even though positive changes across time were detected concerning self-scored PWB and quality of life, the experimental groups did not significantly differ from the control group.

9.1 Coaching as a resource

Coaching at work is performed in a complex organisational system; connecting coaching methodology to a theoretical occupational stress framework could further strengthen the theoretical foundation of coaching and coaching psychology. Stress theories could also give insights into specific environmental factors that coaching methods could impact or interact with, acting as a personal resource.

In an occupational context, work-related well-being is commonly discussed negatively in terms of symptoms like stress, rather than preventatively, which is a key principle in developing work-related well-being. Over 40 years ago, Lazarus and Cohen (1977) pointed out that stressors are demands made by the internal (within the person) or external environment that upset balance, affecting physical and psychological well-being and requiring action to restore balance (Lazarus & Cohen, 1977). This view also agrees with newly proposed definitions of well-being: low well-being scores are explained more like a lack of homeostatic balance or defeat due to lack of resources (Dodge et al., 2012). According to Schaufeli and Janczur (1994), work-related factors are also more strongly associated with lower psychological well-being than individual factors.

The Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti et al., 2001) can be utilised to predict employee well-being by exploring work-related factors. The model puts working conditions into two categories, job demands and job resources. Job demands refer to those physical, psychological, social, or organisational aspects of the job that require sustained physical and psychological (cognitive and emotional) effort or skills, and are therefore associated with specific physiological and/or psychological costs. Job demands can include physical or emotional stressors, such as time pressure, high workload, role ambiguity, lack of support and poor relationships. In the Job Demands-Resources (JD-R) model (Bakker et al., 2003;

Demerouti et al., 2001), there is the assumption 'that every occupation may have its own specific risk factors associated with job stress' (p. 312).

The HSE's MS approach (Cousins et al., 2004) similarly defines a set of risk or health factors that can be used as predictors of well-being of groups in organisations, measured through the MS-Indicator Tool. The factors assessed in the HSE model include demands, control, manager and peer support, relationships, role, and change. The findings from this study provide support for the HSE model's assumption that groups with high scores above the 80th percentile mean higher levels of well-being amongst employees, measured by both PWB (signs of depression, anxiety and stress) and SWB. The results indicate that the participants were working in a healthy work environment, where risk factors could be categorised more as health factors, with positive scores. Additionally, the results imply the existence of already existing buffering factors (like support and relationships) that can balance demands in the job.

First, it is important to explore how PF as a method can fit into current stress or health models, like the JD-R model, to clarify whether SFCBC can be categorised as a resource by definition. Models like the JD-R point towards resources at work acting as buffers against work demands, with social support as one of the important resource factors. Resources can also promote the belief that issues can be resolved, goal attainment can be reached, and straining situations can be positively influenced or tolerated (Bandura, 1986). These beliefs can potentially affect the primary appraisal (Lazarus & Folkman, 1984) and reduce the 'threat' of a potential stressful situation (Bandura, 1986).

According to Demerouti et al. (2001), job resources can be categorised into three main groups and refer to:

> physical, psychological, social, or organizational aspects of the job that are either/or: functional in achieving work goals, reduce job demands and the associated physiological and psychological costs. Stimulate personal growth, learning, and development (p.312).

The question is whether these three characteristics can be attributed to coaching interventions, like SFCBC. Regarding the first category, coaching has been found to positively affect goal achievement (Grant, 2003, 2006, 2012; Grant et al., 2009; Green et al, 2006; Libri & Kemp, 2006). Moreover, the method can also stimulate personal

growth, learning and development, a description that can be said to underlie the coaching field at large. Descriptions of a resource in the JD-R model are also part of the different definitions of coaching (Grant & Palmer, 2002; Green & Grant, 2003). The learning aspect is more commonly incorporated in various descriptions, while some coaching definitions tend to lean towards including enhancement of performance rather than personal growth and development. Outcome measures from coaching research could be described as affecting personal growth, learning and development in, for example: improvements in transformational leadership (Grant et al. 2010 & Cerni et al. 2010); reduced tendencies towards perfectionism (Kerns, 2007); improved cognitive hardiness, mental health and hope (Green et al. 2007); and increased self-insight (Grant, 2014). It could therefore be argued that coaching does fulfil the third criterion for the definition of a resource.

When it comes to the second category – whether SFCBC could reduce work demands and the associated physiological and psychological costs – this study found partial evidence to support this claim. No evidence was found that the method could reduce the associated psychological cost measured by the Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1984). However, the experimental groups were non-clinical, meaning that they did not experience any symptomatic psychological reactions. The findings do imply, though, that SWB significantly increased in the Skype group, and the F2F coaching group leaned towards significance (p=.67). The physiological costs associated with demands were not measured in this study.

The conclusions from this study and previous coaching research do point towards coaching being categorised as a resource in organisations to assist coachees (employees/leaders) in achieving work goals, reducing work demands, increasing SWB and stimulating personal growth, learning and development (Cerni et al. 2010; Grant, 2003; 2006; 2012; 2014; Grant et al., 2009; Grant et al. 2010; Grant & Hartley, 2013; Green et al, 2006; Green et al. 2007; Libri & Kemp, 2006; Kerns, 2007).

The second important question for investigation was whether SFCBC can be categorised as a form of social support. Social support is, as a resource, probably the best-known situational variable (Bakker & Demerouti, 2007) which could act as a potential buffer against strain at work (Haines et al. 1991; Johnson and Hall, 1988). Social support has also been described as beneficial “irrespectively of whether one is under stress” or not (Cohen, 2004, p. 678). Perceived support at work is also positively related to goal attainment (Grebner et al, 2008). Another factor is the individual’s own

'support-seeking behaviour', which can be linked to an employee's social identity at work. Social identity can be associated with being in control and competent in performing work (Halbesleben, 2006); consequently, employees can have a strong tendency not to reveal personal information or emotional reactions that might be interpreted as unprofessional by their peers (Maslach, 1982; Buunk & Schaufeli, 1993) or leaders. An example would be that unless 'support-seeking' behaviour is seen as a natural part of the organisational culture, it is likely that employees and leaders alike would be hesitant to reveal information about their need for support, fearful that it might be viewed by peers and leaders as if they cannot handle the job assignment properly.

SFCBC can be utilised (and defined) as a personal resource to support the individual's problem-solving skills and solution focus, which has been observed in previous research dating back to the original theoretical roots of the PF (D'Zurilla and Goldfried, 1971). In the problem-solving model of stress and well-being, social problem-solving (defined as real-life problem-solving) (Bell & D'Zurilla, 2009) plays an important part in mediating between perceived stressful life events and well-being (D'Zurilla & Nezu, 1999, 2007). SFCBC may also alleviate or neutralise the social identity factor when performed with an internal/external coach, and/or facilitate support/solution-seeking and proactive behaviour. It might also be easier to talk to a coach outside the normal work context about different challenges at work.

Coaching appears to fit well into the concept of social support as described within the different stress theories/models. This would further explain why, from an organisational standpoint, SFCBC had an effect on perceived work demands.

The association between SFCBC and SWB/PWB/work factors (risk factors) at time point three was therefore considered a causal relationship. Time point three score differences in Demands and SWB were, when compared to time point one, considered a direct effect of the intervention. Although the associations between work characteristics and well-being may also be explained by a reciprocal (bi-directional) relationship in which work factors and well-being mutually influence each other (Williams & Podsakoff, 1989; Zapf, Dormann, & Frese, 1996).

9.2 Subjective well-being

It will be argued that coaching by definition can act as an individual resource (e.g. support function), mediating work demands which potentially affect stress reactions and subjective well-being. Although there are numerous definitions of stress (Lazarus &

Folkman, 1984), it can also be defined as the 'experience of anticipating or encountering adversity in one's goal-related efforts' (Carver & Connor-Smith, 2010, p. 683). Consequently, when an employee encounters problems, not reaching work goals this could increase stress and reduce SWB. Interfering factors, e.g. work factors impacting on subjective well-being, could theoretically effect an individual's homeostatic balance. These include lack of personal or organisational resources, effects on cognitive and behavioural aspects due to stress (e.g. memory, concentration and effects on executive functions), or lack of knowledge or awareness in problem-solving abilities. Drawing from homeostatic theory of well-being it can be suggested that an individual's work environment would only influence their SWB if it was perceived to be the source of issues severe enough to lead to homeostatic defeat disabling the protective function of buffers.

The results displayed significant positive changes in SWB in the Skype group measured through the Personal Well-being Index (PWI) and F2F coaching group, close to significance (p =.67); and a lack thereof regarding the SWLS. Interestingly, both scales are regarded as stable measurements, meaning that SWB is not easily changed over time (Diener et al., 1985; International Wellbeing Group, 2013). Headly and Wearing (1992) conclude 'it is clear that there are very strong relationship… between life satisfaction on the one hand and job satisfaction and satisfaction with one's home life on the other' (p. 76). This means that SWB scales measure satisfaction in life when it comes to both the private and work domains. Even though the scales are positively correlated (Richardson et al., 2013), the differences in the findings show that they may represent different aspects of SWB. Even though the scales used in this study does not measure specific work-related well-being, SWB is a stable measurement, and does not easily change. The theory of homeostasis postulates that SWB operates under homeostatic control (Cummins, 1995; 2010). Though levels of well-being may temporarily rise or fall, internal mechanisms work to return the well-being level to its set-point (Cummins, 2010; Cummins et al., 2014). To conclude, the results from this study may indicate that when an individual has the resources (SFCBC) needed to meet a particular psychological, social and physical challenge at work, SWB can rise. In support of this argument Cummins (2000; 2010a), also pinpoints that external resources such as supportive personal relationships have been found to act in defence of SWB.

An interesting note from the research involved one question regarding why it was being performed among already healthy participants instead of focusing on those with lower

levels of psychological well-being. This question may reflect a general view of psychologists as predominantly concerned with ill-health rather than promoters of psychological well-being. It may also reflect a resource allocation conflict: when resources may be strained for those who need third level interventions (psychotherapy / counselling) for psychological distress, why focus on groups with a high level of well-being? It also pinpoints the different challenges which can present themselves when moving psychological methods into non-clinical contexts, where the incentive is not based on helping someone regain psychological functioning (meaning lessening symptoms already present), but increasing what is already strong.

An interesting and unexpected finding revolved around initial (at timepoint one) and across time differences in subjective well-being between gender and role. When further analysed, although performed without a control group, the results showed, when combining all coaching groups, that leaders had an initial higher SWB than employees, and females generally had a higher SWB than men in similar roles. Male and female employees showed a greater effect on SWB after participating in a SFCBC programme than leaders. Although representing a relatively small sample, these findings contradict major studies, where females are referenced as having lower well-being than men. Overall, nearly eight of 10 employees in the EU report good or very good health. On average, the SWB of workers in Europe is rather high: 68 out of 100 points, (WHO-5 index). In Sweden, scores for females (M=65) are lower than for males (M=70); albeit across all countries, the score for men is the same as, or marginally higher than, that for women (Eurofound, 2017).

One explanation for this may be provided by the EU Commission (2015)'s report on 'Gender Gaps in Subjective Wellbeing': globally, especially in high income countries, women declare a higher level of life satisfaction than men when experiencing similar conditions (e.g. pay and working conditions), but score lower on measures that capture short-term positive and negative emotions, and are said to suffer from higher levels of depression. The findings from this study cannot find any evidence that woman experience higher levels of psychological or depressive symptoms than men; but the sample was controlled for psychological symptoms above certain points, and those individuals (n=3) were offered other forms of interventions/treatment.

9.3 Goal attainment and coaching outcomes

In this study, GAS was incorporated into the PF as an extension of the goal success rating already present in the model. The two methods complement each other, as the PF also utilises goal setting and tracks the goal achievement process. By incorporating the GAS method into the goal attainment and evaluation process of the PF, a more scientific goal attainment score could be obtained for the purpose of measuring outcome effects. It may have strengthened the method further with a structured measurement of the goals which could later be evaluated for scientific purposes. However, it is problematic to specifically know and separate the impact of coaching on goal attainment from the effect of GAS on the coaching outcomes. When coaching is performed with GAS, as argued by some (Spence, 2008), it will remain unclear how the two interventions individually influence goal attainment or if they interact in influencing goal attainment unless studied separately (coaching/no-GAS and coaching with GAS). These possibilities remain empirically unexamined (Spence, 2008).

In the study, participants were advised to set goals related to their well-being at work. The content analysis performed with Nvivo indicated that 'role' was the second most frequent word used in the goal formulation relating to their well-being goals. Only one of the participants chose to focus on physical health goals (physical training or healthier diet) to increase well-being. There may be different reasons for this. One reason might be that physical health areas felt unimportant to focus on when increasing well-being at work. Another could be that the coach's profession (psychologist) affected the goal areas chosen by the participants. It may be plausible to assume that coachees would have chosen other areas had they been coached by, for example, a health coach.

Another reason could be the use of the MS-Indicator Tool as an outcome measure: participants could have made assumptions, based on the assessment questionnaire, regarding what the coaching was about. Even though the questionnaires were never mentioned (or the results discussed) as a reason for setting goals, they might have influenced the goal setting focus. It is however interesting that the goals selected by the participants focused mainly on work environment areas and hindering factors: especially concerning the relatively significant investment in purely physical health promoting interventions in today's organisations (Cooper & Cartwright, 2013). This could reflect a need for other types of interventions in organisations focusing on employees' work environment factors to increase subjective well-being in non-clinical groups. Interestingly, NHS (2015) has stated that decreases in mental health can drive a

50% increase in physical healthcare costs. Perhaps it is easier to talk about and promote activities that keep employees physically healthy then address the more mental side of the same issue?

Results from the MS-Indicator Tool also showed that work factor Role were the only factor scoring below the 20th percentile, compared to other companies (HSE, 2017). The Nvivo word analysis revealed that Role was a common theme when setting goals, and was associated with solutions indicating the need to change or develop: a) current role (and team role), b) cross-functional roles (roles in projects spanning over different organisations), c) double roles (the combination of project leading roles and simultaneous 'ordinary' role-specific work assignments). Other themes connected to Role was competence development relating to the work role, such as cognitive/behavioural or time management skills.

The role theme can be categorised into the concepts of role conflict and role ambiguity, which have been found to indirectly influence burnout (Levert et al., 2000), and negatively impact employee well-being. By addressing this area in the coaching sessions, it can be theorised that goal attainment relating to the factor role may have lessened perceived demands in participants' work roles. This finding is in line with Sørensen and Holman (2014), who suggest that occupational health interventions concerning knowledge workers should focus on reducing task uncertainty and ambiguity, which can have a positive effect on knowledge work job characteristics and well-being (Sørensen and Holman, 2014).

Even though long- and short-term goals were not explicitly analysed, some participants chose to work with goals that were more long-term or intertwined with the team's developmental progress after organisational changes. These individual long-term goals connected to the need for changes in, for example, team developmental processes, and were not possible to obtain on an individual short-term basis. However, awareness of their impact and the need for solutions for change was seen by some coachees as the first part of a longer-term change process initiated by coaching.

The goal attainment scores also suggested, across all coaching applications, that participants' goal attainment was associated with the number of coaching sessions conducted. The results from the GAS seem to show that SFCBC, regardless of coaching application, is most effective with a minimum of 3-5 sessions. One reason for some less frequent coaching contacts could have been the lack of time or motivation; as Taris and

Kompier (2004, p. 150) note, ‘workers under time pressure and quantitative overload have little opportunity for setting new goals, developing new action plans, and tend to revert back to prior automatized skills’ (Frese & Zapf, 1994; Pomaki et al., 2004). That said, previous research has suggested that short-term coaching interventions ranging from one to four sessions can be effective (Burke & Linley, 2007; Grant et al., 2009).

9.4 Demands in work role

Stress theory literature indicates that high job demands can exhaust employees’ mental and physical resources and therefore lead to depletion of energy and psychological health problems. Although job demands are not necessarily negative, they may turn into job stressors when meeting them requires high effort from which the employee does not fully recover (Meijman and Mulder, 1998). Considering that work demands were affected by SFCBC (Skype) and that the goals selected largely stemmed from role conflict and role ambiguity, it could be argued that when directly addressing these issues in coaching, an improvement in SWB could be achieved. The goals documented also shows similarities with previous research findings, which suggest that engineers’ main stressors at work are work demands and role conflicts.

Knowledge-related work usually involves a high degree of complexity and ambiguity, as well as high levels of cognitive demands, intellectual challenges, and high levels of task discretion and variety (DeFillippi et al., 2005; Drucker, 1993). A longitudinal examination into the effects of risk factors on psychological distress (*N*= 12,550) found that both high role conflict and high emotional demands were significant predictors of psychological distress (Johannesen et al., 2013). In the light of this, participants’ own choices of the main focus for increasing SWB during coaching sessions can be argued to reflect the significant predictors of psychological health. Job demands are more quantitative aspects of, for example, workload and time pressure (Karasek, 1985). Role conflicts and emotional demands are also part of job demands (Karasek et al., 1998). Role clarity is the degree to which individuals perceive that required information is provided about how to perform their work (Teas et al., 1979). When uncertainties arise about role expectations and lack of clarity, this can in turn lead to role ambiguity. Role ambiguity can be defined as the lack of clear and specific information regarding work role requirements, repeatedly linked with job stress and low job satisfaction (House & Rizzo, 1972; Nelson & Burke, 2000; Ivancevich & Donnelly, 1974).

Salutogenic or positive psychology research implies a focus on health maintenance rather than disease processes. In line with the UK Health and Safety Executive (HSE), it is reasonable to identify if the present generalizable set of indicators (demands, control, support, relationships, role, and change) are indeed predicting work-related and general well-being. These indicators provide information about the current psychosocial work environment. In the occupational health and safety field, it is well known that job characteristics affect workers' health and well-being.

Demands was measured through the HSE-MS Indicator Tool (HSE, 2002)), Demands was the only factor that was effected by the SFCBC (Skype) intervention and relevant to evaluate further. The items corresponding to this factor are: 1) Different groups demand things from me that are hard to combine, 2) I have unachievable deadlines, 3) I have to work very intensely, 4) I have to neglect some tasks because I have too much to do, 5) I am unable to take sufficient breaks, 6) I am pressures to work long hours 7) I have to work very fast, 8) I have unrealistic time pressures. The Demands dimension measures workload and work pace and indicate risks like excessive workload. High scores on the demand factor have also been shown to significantly increase musculature pain, anxiety and depressive symptoms lowering psychological well-being (Marcatto et al., 2016).

In this study the role ambiguity factor was one of the dominant issues or 'goal selection areas' documented from the GAS. Hypothetically by addressing role ambiguity factor the coachee could lessen the work load and lessen the demands at work. The results from the Nvivo analysis of the main solutions corresponded to role clarity which shows similarities to a study involving 462 employees examining employees' perceptions of what factors that reduces stress at work. Thematic analyse identified changes in job or work role, new heads of departments or supervisors, and the use of organisational strategies to reduce or manage stress (Pignata et al., 2017).

The work environment factors can that, applied in a work context relies on not only the initial identification of the issues encountered by an individual, but also the process of realistic evaluation and appraisal of the current situation and the possibility to achieve desired outcome e.g. goal achievement. Coaching an individual in a work environment context involves a specific context with a number of factors present, for example change processes (large or small), situational factors and deadlines. The inclusion of SFCBC interventions at work shows that it may act as a method to support the individual's job crafting activities: for example, by addressing role ambiguity, which if successfully

resolved can lead to reduced demands, and increased SWB. Since a large proportion of the group were civil engineers (76%), a highly collaborative profession where teams usually work together to develop, design, implement, and troubleshoot projects (Hall et al., 2015), these jobs often involve a high degree of both complexity and ambiguity. It has also been suggested that 'engineers probably have relatively low level of control over work-related sources of stress' (Lindgard, 2003, p.79).

Job-related variables positively correlated with emotional exhaustion amongst engineers included work overload (Malan, 2004) and role conflict (Lindgardar, 2003). One explanation of why work can affect employees may involve unresolved job-related problems and unattained work goals, which may lead to persevering cognitions, e.g., worrying, rumination (Brosschot et al., 2005). One buffer for the engineering group is thought to be social support (Singh, 2012); along with increasing role clarity (reducing task ambiguity and uncertainty) by improving feedback from managers (frequency and quality), which lowers uncertainty over task solutions and progress (Sørensen & Holeman, 2014). The effects of social support on psychological well-being as a result of either interaction effects (of control) or the main effects of support (Logan, & Ganster, 2005) is unclear, as both main effect and interactive models have been tested but with mixed results (Johnson & Hall, 1988; Landsbergis et al., 1992; Schaubroeck & Fink, 1998). The implications from this study are that SFCBC (as a supportive function, e.g. resource) has a direct effect on subjective well-being through its mediating effects on demands. What the participants are doing to change their work situation is to clearly address different organisational factors, by focusing on work design, utilising social support or change behavioural aspects in how to deal with unclear conditions: for example, with regard to roles, developing self-confidence or new skills in asking for support from their managers and peers (team members).

Increasing the resources for social support, especially for knowledge work employees, may have a snowball effect: Hobfoll (2001) hypothesised that availability of social support could bolster feelings of self-esteem, leading individuals to feel more comfortable about seeking further such support in the future. SFCBC utilises specific questions to further enhance the coachees' problem-solving capabilities implicitly through the solution-focused framework, by facilitating new problem-solving skills in the co-creative process of meaning when dealing with different issues and their effects. As the coachee learns how to solve problems in new ways, when exploring their own

thought processes, the goal attainment process can be strengthened with new information processing abilities and solutions.

9.5 Behavioural change techniques

To further the understanding of which specific parts of the PF, the techniques and mechanism of action that hypothetically could be responsible for the change in SWB and Demand scores, the specific components was sorted according to Carey et al., (2016) findings, see table 3.3. The PF's main behavioural mechanism of action could potentially consist of:

1) Behavioural determinates: Cognitive Behavioural and Social Cognitive Theory.
Affecting affective and cognitive processes, through self-monitoring of behaviour, feed-back on behaviour, dialog concerning advantages/disadvantages, which in turn could affect behavioural regulation, subjective norms and attitude towards the behaviour
2) Behavioural determinates: Goal setting theory.
Learning the goal attainment process through goal attainment scaling, by behavioural practice and rehearsal and graded tasks could in turn affect attention control and skills in setting specific time framed goals.
3) Behavioural determinates: Social Problem Theory.
Through the use of problem solving questions the coachee could potentially through the coaching structure, increase knowledge in adaptive problem-solving attitudes and skills. Behavioural practice and rehearsal, the use of graded tasks could have increased skills in positive problem orientation and beliefs of capabilities of making changes.

9.5.1 Coaching applications – a comparison

The findings revealed differences between the three coaching applications with regards to effect measured through the variables SWB and work factor demand. The Skype application had a direct effect on SWB and mediating effects on demands. The F2F application had *ns* effects on SWB, albeit leaning towards significance (p=.67). The SC application showed *ns* results. The differences between F2F and Skype was a surprising find and on closer inspection it was revealed at timepoint three, the F2F group consisted of three more leaders then the Skype group which could account for the differences.

The SC group only consisted of 11 participants; the results demand a more careful analysis. The PRACTICE SC programme was designed as a stand-alone application, although built on the same method as the F2F and Skype applications. Participants offered the SC programme after taking part in the control group passively withdrew

from the study by not responding to the questionnaires or by referring to time constraints when followed up with. Other participants in the SC group engaged by setting aside time in their Outlook and regularly worked with the programme. As one participant said in a follow-up, 'This is one of my issues, not setting off time for planning my work, and I act the same way when it comes to this programme by not prioritising working with that goal'.

Another comment was that having two goal attainment scales in the method was confusing. This was a design flaw; when incorporating GAS, the 'old' goal attainment scale was present, albeit more as a cognitive reminder. When looking at attrition rates, similar to the findings from Study Two, it seems the SC application was more sensitive to motivational and time related issues. A self-assisted intervention would benefit from more interactive elements, leading to better flow between parts of the programme and being more intuitive to the user's process.

The programme was built in a linear way, although the coaching method had a circular process. The circular process of coaching can inhabit many different aspects simultaneously. For example, to access previously documented ideas for solutions to issues or goals, the participant had to go back to the start of the programme and read up, then manoeuvre back to the part on which they were working. This may have created abruptions in thought processes: moving between sections and perhaps not easily finding their way back to the original section of the programme. It seems important in future applications to create interfaces that make manoeuvring more intuitive. Compared to the F2F and Skype condition, it is reasonable to assume that the goal rating process between SC and F2F/Skype condition differed regarding the time of the coach's active involvement in the goal setting process, compared to the SC group: where participants themselves reflected on the goals achieved and their progress. The number of goals reported back from the SC group was not only fewer than those set by the other applications, but the goal attainment score was also lower. This finding is supported by research into self-help programmes: those in which support was provided were more effective (d = .61) than those without support (d = .25) (Andersson, 2006; Andersson & Cuijpers, 2009). More recent trials support this observation too (de Graaf et al., 2009).

Another study comparing the efficacy of F2F and SC among leaders concluded that for the SC group, the modality was not sufficient in terms of reaching high goal attainment, with performing exercises not supported (Losch et al., 2016). Additionally, 'the coach's

transformational and transactional leadership behaviour influenced participants' perceived autonomy support and intrinsic motivation, resulting in beneficial coaching outcomes' (p. 629). Although the goal attainment scores were lower than the other applications, taking into account that the SC group was smaller and therefore provided less reliable results. It seems that goal attainment can be achieved without regular support; but as Andersson (2006) and de Graaf et al., (2009) point out, programmes with support were more effective. This would suggest that to increase the effectiveness of the intervention, SC programmes could benefit from a more regular coaching contact to support the process. In the future, with better technology-driven (interactive, immersive) coaching programmes, a coach may not be necessary for non-clinical groups where the programme could act more as a preventative intervention, with support information available.

When using a SC programme, effectiveness can also depend on the technology used, not the method *per se.* The PF have been shown to affect cognitive and behavioural aspects in all studies performed in this research, so the lack of effect may 'reflect implementation failure (or teething problems) rather than genuine ineffectiveness' (Craig et al., 2008, p. 337). The overall results including the attrition rates, not responding to the questionnaires, shows that the SC programme was less effective and probably less motivating to use. When constructing coaching programmes for comparison to other applications, it would be helpful to develop them in cooperation with other professions such as computer scientist.

9.6 Interventions in organisations

In the context of the numerous models and theories described in the review of occupational stress research, it seems essential to answer where individual coaching interventions fit into the overall picture. To be able to differentiate between different organisational interventions, a classification structure has been brought forward (DeFrank & Cooper, 1987) that considers all the various methods, levels and interventions that can be applied in an organisation, for example Deakin University (2017)'s illustration or model (see Figure 2.4). This model gives a practical visual overview of the important parts of stress management or health promotion activities in organisations. Tertiary level interventions seem to be most frequently used in organisations, mostly concerned with reducing the effects of exposure to psychosocial hazards through management and treatment of symptoms of occupational disease or

illness (Jain et al., 2016); followed by secondary level interventions, with primary level ones being least used (Giga et al., 2003; Hurrell et al., 1996).

As tertiary interventions are most commonly used, Cooper and Cartwright (2013) have argued that "there appears to be markedly less organizational concern with adapting the environment to 'fit' the individual" (p. 34). One argument commonly employed in the literature is that individual methods are less effective in solving organisational primary level causes; and individual methods are dismissed as 'band-aid' interventions, which aim to improve the adaptability of the individual to fit the environment (Cooper and Cartwright, 2013).

This may be true, although the findings from this study suggest when using SFCBC at work, participants did indeed primarily choose to work with goals relating to organisational root causes or the problem at source, such as work design issues or role ambiguity. Moreover, goal attainment was achieved (albeit in varying degrees) for part of the population. This could suggest that the goals/issues concerning role ambiguity may have been resolved by seeking support to create role clarity. An example would be that, by becoming more aware of issues surrounding work through the solution-focused and cognitive behavioural approach and exploring possible solutions, the coachee could identify a path forward.

Further, by reflecting on the cognitive, behavioural and emotional aspects/effects, suggestions/solutions for change could be achieved by themselves or through support-seeking behaviour (proactive behaviour): in other words, actions that could also be described as the employee's own job crafting initiatives, in which the individual crafts the environment. This could suggest that SFCBC can assist in solving at least part of the work environment problems at the source. However, without support from a manager or peers, or with ongoing organisational change affecting the role, it might be more difficult to achieve goals and job crafting solutions.

Since coaching interventions are not used in clinical populations, or rehabilitation (tertiary level), a logical argument would be to place the method at the secondary level as first level interventions are described mainly as 'organisational level' (DeFrank & Cooper, 1987; Burke, 1993). An example of a first level intervention would be when applying psychosocial risk assessments in work groups, assessing root causes of different work related issues. Risk assessments measuring, say, a team's level of well-being and specific risk factors can reveal teams that are under strain and need further

support, this would be considered an organisational intervention, as the focus is on organisational factors. The assumption here is that if a sufficient part of the group's results displays a similar perception of their work environment, it will also show the work factor as a risk rather than a resource. This would in turn point to the presence of an organisational factor or stressor; not an individual perception of a problem – although there may be individuals in teams that perceive their work role as more affected by organisational factors than others, which would not show up in risk assessments at the group level.

The divide in views of which interventions that are most important a) the strengthening and enhancement of individuals and their resources and b) the reduction of common workplace-based sources of occupational stress (Burke, 1993) remains conflicted. One argument for proposing SFCBC as a first-level intervention in its preventative or proactive function is that it could assist the individual employee with challenges in their specific work situation or role. The goals chosen by participants suggest that, if given support, time and the opportunity, they will actively engage in proactive person-environment fit behaviour by seeking further support, feedback and crafting their jobs (Grant & Parker, 2009). However, if employees do not have the resources needed these activities may fail.

This is in line with recent reviews of stress management interventions at work, which showed average effective sizes for cognitive behavioural interventions (d = 1.167): indicating that workplace stress management interventions, particularly those incorporating cognitive behavioural components, can be efficient in improving employee well-being (Ryan, 2017).

Performing coaching interventions with the focus on increasing well-being in an organisational context does not, at first glance, appear that revolutionary; though traditionally, the focus of coaching efforts in organisations are related to performance. However, with the increased focus on the well-being aspect of work and its relation to performance, it might be more accepted today to focus on the use of coaching interventions to increase well-being. Coaching is supposedly offered to a larger extent to managers in organisations and less frequently to employees, although no studies investigating this assumption have been found. One reason for this might be that managers by tradition have been offered coaching as part of, for example, leadership development programmes. Employees may not have been offered coaching in a similar fashion. Instead, they rely on their manager to provide coaching, or to have the

willingness or availability to support coaching with an internal/external coach. Interestingly, post hoc findings, although lacking a control group, seem to suggest that male and female employees (civil engineers) benefited to a higher degree from the SFCBC when it came to increased well-being scores.

9.6.1 Coaching as a proactive methodology

It is well-known today that the need for psychological interventions is increasing at a rate that can only be described as alarming, with an 40% expected increase in individuals estimated to need psychotherapy by 2020/21, a total of 600,000 individuals (NHS, 2017). In the light of this, the NHS states that prevention and early intervention must be prioritised. Of 20,473 people, 52% said access was in their top three priorities for change, 33% wanted a choice of treatment, and 25 % mentioned prevention. Funding was important: with 21% rating it in their top three priorities, while stigma was cited by 19% (NHS, 2015).

Some people avoid seeking assistance at an early stage, believing that their symptoms are not serious enough and that a stigma can be associated with seeking help. This phenomenon co-exists with or could be a result of lack of appropriate availability and accessibility of more modern, preventive psychological methods aimed at sub-clinical groups. Short term SFCBC could potentially fill that gap. Instead of, as seems to be the case in the NHS, solely focusing on psychotherapy, short term SFCBC could be offered as an additional option. The intervention is aimed at non-clinical groups, where possible symptoms have yet to reach critical mass and morph into psychological distress, whereby higher intensity/longer treatments may be needed. Yet SFCBC could also offer a method which is not associated with symptomatic conditions: which may remove the feeling of stigma cited in different surveys as a reason for not seeking assistance or support.

9.7 Summary

Even though SF approaches are frequently used in a wide range of contexts and clientele (Grant, 2012b; O'Connell & Palmer, 2007), there is less empirical research explicitly looking at how solution-focused approaches work (Grant & O'Connor, 2010). Consequently, "the psychological mechanics of how solution-focused approaches create change is relatively unknown" (Grant 2011, p. 99). There is no conclusive evidence concerning SFCBC methods effectiveness on a larger scale, or how SFCBC specifically create change. Although in 2013 a larger meta-analysis was published stating that the

empirical evidence for SF brief therapy was strong, particularly in the fields of mental health and occupational rehabilitation (Gingerich & Peterson 2013). In an attempt to address this lack of clarity behavioural change techniques and mechanism of actions were defined based on the PF, detailing the specific techniques responsible for creating change.

Manualised methods like the PF adapted to research can be helpful when isolating specific factors that potentially could affect outcome. Although this form of manualised approach can become technical and leave little room for creativity for the coach. The building of a relationship is central in most coaching approaches and important also in terms of effectiveness of coaching outcomes. Assumedly most would agree that it takes time to build trust, the building block for a relationship. Working with PICT like Skype also adds to the 'technicality component' of coaching and to be able to quickly connect and create a mutual goal for the coaching relationship can therefore be important. Although a manualised method like PF can be restraining and feel controlled the transparent structure can also be helpful in creating trust in what can be expected. Coaching through audio only, require attention and skills in listening to tone, to give room for silences. It can be easier to interrupt thought processes as the coach has no visual ques to pay attention to and were the coach more easily might interrupt with a question while the coachee is thinking about what to respond or reflecting on an issue or solution.

This research also attempts to bring forward a work environment perspective in coaching psychology and even though coaches work with external work related issues in their coaching practises, coaching psychology research lacks published studies in the work environment field. Like the early research in stress was criticized for focusing only on intrinsic factors to explain stress reactions, coaching psychology research could also benefit by including work environmental factors. To broaden the understanding of which factors that can affect coachees at work and coaching interventions effectiveness.

9.8 Limitations and implications for future research

This study had a number of strengths. It was a randomised controlled study with a sequential design. Measurements were performed at three different time points, with the last one at three months' post-coaching. Qualitative data was gathered concerning goal-related subjects were reliance on data from different sources can reduce the likelihood of common method bias affecting the findings.

However, there were also several limitations. One of these involved the non-longitudinal design, meaning that the effects of the coaching interventions could not be reassessed during a longer time period than three months post-coaching. The study groups had to be downsized compared to the original design: thus the more powerful MANOVA statistical analysis could not be utilised. The results were mostly obtained by self-report questionnaires, which may lead to method-variance. The research was also conducted on quite a homogenous sample, mostly consisting of individuals from a specific profession: engineers (76%). The engineering profession probably has some unique characteristics, and the work environment might additionally be connected to a specific organisational culture, which could also have influenced participants' responses. The participants were self-selected, mature age, highly educated professionals; they may not be representative of a general population and may have been especially motivated to achieve their goals.

Further, the design may have induced a demand effect; that is, participants may have felt they had to report making progress and enhanced well-being in order to please the researcher and coaching psychologists. The implication of this would be that the results might not be generalizable to other contexts or professions. While the use of self-report measures is widely accepted in social sciences and psychological research, the centrality of goal attainment requires coaching researchers to find ways of maximising objectivity in their datasets. Goal attainment ratings based solely on a coachee's subjective assessment of performance are highly susceptible to various forms of distortion and bias (e.g. performance rationalisations, recall inaccuracy), raising doubts about the degree of reported changes in goal attainment.

Performing research into today's organisations, which go through change on a regular basis, can seriously affect results, especially sequential and longitudinal studies. Larger organisational change processes (not communicated in advance) were a factor in all studies in this thesis, affecting the study samples in different ways. It is one of the difficulties experienced when performing research in complex organisational systems.

Another effect on the study was that these organisational factors (rapidly changing organisational structures, job feedback systems) and individual factors (information processing biases) may also cause role ambiguity, which in turn could explain participants' focus on goals connected to their role. However, one control measure for change which can be used to benchmark this organisation against others is risk factor change, present in the MS-Indicator Tool. The values scored from the participants

showed that this factor was above the 80th percentile at baseline (timepoint 1) which means that, compared to other companies, the group scores were placed in the highest ranking. The questions asked within this category refers to how change is managed within the organisation, 1) if employees have sufficient opportunity to ask managers about changes, 2) if employees are consulted about the change and 3) if the employees are informed how the changes would work out in practice. Additionally, as presented in Table E6 (Appendix E), ANOVA repeated measures and pairwise comparisons on the DV change revealed that scores at Time 3 was significantly higher than at Time 1 (p = .004), and Time 2 (p = .018). The time x group interaction was *ns*, indicating that the change over time did not differ by experimental group compared to control. This may suggest that DV change in itself did not impact the experimental groups in any significant way.

Due to study constraints, a full content analysis could not be performed on all the goals and solutions documented. It could have provided additional information as well as comparisons between the different goals with corresponding work factors.

Another factor in the research was the functioning of the Skype application. The technology did not always work as expected due to network issues, computer problems (network cards), integration problems with the operating system or security software, current or ongoing updates, malfunctioning internal (computer) or external microphones, or differences in technological equipment in different rooms. This caused interruptions during the coaching sessions or when attempting to connect. By the use of a mobile phone as a backup technology, the interruptions could be handled.

Working with preventative methods in non-clinical work groups, with high-performing employees from R&D or other highly trained civil engineers, meant that at times the employees had limited time in their agenda. As a proactive intervention is not motivated because of symptoms of stress and ill-being, but is more connected to strengthening what is already working well, the intervention and the time set aside might be more sensitive to sudden work demands or project deadlines, which could be the reason for the number of re-bookings. When someone is experiencing a stress condition, the work demands are usually looked over as an action from a manager during the period of rehabilitation and engaging in time for psychotherapy or counselling is more accepted. In a more normal state of well-being, the work demands and time allocated for reflection and well-being interventions, like coaching, could generally be more sensitive

to work constraints and the acceptance of 'need' for the intervention, as well as acceptance (or view) of proactive approaches within the organisation itself.

Research into Health and Safety and organisational stress theories shows that primary level intervention is the most effective way to combat ill-health by eliminating or reducing the sources of strain (stressors) in the work environment. The civil engineers working in this specific organisation had relatively high levels of well-being and no detectible psychological distress (depression, anxiety and stress), although the male engineers displayed lower SWB then females. From this, it seems that SFCBC is helpful but that support for job crafting can be important in itself. Technology-driven organisations employing civil engineers could benefit from including, due to the very nature of the profession and their work, a work culture supportive of different initiatives; and inform employees about the chance of their own initiatives to craft their jobs. Furthermore, managers may need additional knowledge regarding the specific profession of employees.

Support aimed at increasing role clarity should be prioritised in cross-functional organisations. Traditionally top-down job designs can prove challenging in today's organisations; a bottom-up work design (job-crafting) can prove more suitable in the current changing organisational world. The HSE model can also be practically used in organisations to assess the current resources within a team: for example, a team with high demands, a high level of manager and peer support and well-functioning relationships can potentially balance the demands in a work group and sustain well-being.

Chapter 10: Conclusions

With the perspectives of salutogenesis and occupational health, this study took an approach which considered individual goal attainment and SWB as moderators, mediators, and/or direct predictors of health outcomes of coaching. It was predicted that SFCBC would strengthen personal resources and secondary outcomes potentially relevant to a salutogenic process, as proposed in the J-D R model. The study's findings provide evidence that SFCBC enhances SWB when applied as a short-term intervention at work. Moreover, the PRACTICE framework mediated the coachees' perception of demands (Skype), acting as a resource (e.g. support factor) according to the JD-R model.

The coaching psychology field is closely related to other psychology domains, such as organisational/occupational psychology, but lacks a theoretical foundation for how coaching, when performed in an organisational context, can fit into current organisational, stress and well-being theories. This study also represents an attempt to explore coaching psychology's role in that perspective; specifically, SFCBC's possible future role as a practical proactive method in an organisational context. The practical implications of the findings seem to support the notion that cognitive behavioural solution-focused methods could increase proactive behaviour and learning in problem-solving skills, by focusing attention concerning the individual's specific working condition and the goal attainment process needed for change. Coaching psychology could take a step into the Health and Safety arena, bringing with it useful methods and approaches to organisations in their work with environmental factors that affect employees' subjective well-being.

The PRACTICE framework seems to have promoted early, proactive detection of issues (e.g. potential hindrance factors). Through the SF process (goal attainment), potential work stressors could be changed, in turn reducing perceived demands in the job role. From a theoretical perspective, SFCBC could act as a supportive function: (resource) balancing perceived demands, where coachees can become actively engaged in solving the issues. By learning new problem-solving skills, participants could actively strengthen their job-crafting initiatives (through goal attainment). Importantly, this change process, involving both the individual and their environment, needs further

support from within an organisation, from managers and peers. When no support is available, the job crafting initiatives (goal attainment) may be less successful.

Company healthcare units in Sweden are contacted by employees and managers for various reasons relating to work environment issues. When it comes to individual psychological problems, company healthcare (CHC) has a unique position, as employees have access to psychologists and behaviour scientists when needed. Usually, treatments on an individual level include short-term interventions such as therapy and counselling. For more severe conditions like anxiety and depression, there are referral options to primary and psychiatric care. CHC units also have a unique understanding of the work environment and conditions within the specific organisation they support, usually with quick access to psychological interventions. Psychological health issues encountered within a CHC organisation range from signs of ill-being (psychological strain) to more manifest stress conditions and burn-out. Its goal is not only to work with preventive methods, but through rehabilitation efforts, to support confidential individual treatment and, in collaboration with HR and managers, planning returns to work and suggesting adjustments at work when needed.

Evidence-based coaching approaches are yet to be seen as a natural part of the services offered. Instead, therapy, counselling and different forms of 'supportive conversations' are offered by a wide variety of professions. Therapy and counselling are performed by psychologists and behavioural scientists with appropriate training. However, 'supportive conversations' are performed by a variety of professionals like nurses, doctors and health coaches. Even though the CHC has preventive organisational goals, the focus is on treating individual symptoms. Employees usually contact the CHC rather late in their 'psychological health journey', due to the third-level focus point of the organisation (treating symptoms/rehabilitation). This is presumably also true for primary care units and individuals who do not have access to CHC, or where symptoms are not related to work. As the NHS notes, the need for therapies will increase in the future. It is imperative that preventive approaches are made accessible to the general population. A lack of preventive or proactive methods will increase the need for third level interventions: bringing with it not only individual suffering, but also more cost-intensive interventions.

The Stepped Well-being Model (see Figure 4.1) attempts to visualise the different variations of interventions/methods that can be applied and utilised from the individual/private, CHC and public health perspective. In the model, virtual assisted or

self-assisted methods are recommended to be made accessible to individuals as eHealth options/preventive methods. Private, CHC and public healthcare organisations like the NHS are generally seen as differentiated – almost three different worlds. One solution to this is that political, company and public healthcare representatives come together on a national level to create level one, cost free, evidence-based psychological eHealth solutions that could offer learning opportunities (educations in psychological health) and self-assisted coaching programmes. By taking a general responsibility for the population's psychological health and the development of eHealth solutions, the methods can be validated.

The quality of these programmes is of critical importance here. As of now, different initiatives and solutions are created in which there is no real control. Nations could offer eHealth portals for psychological health (not just physical health) which are well-communicated to the general public and companies can integrate on their intranets. Fast-moving information and communication technology advancements can perhaps also enhance proactive psychological interventions and make them more motivating to use. As seen in military applications like the Sim coach programme (Rizzo et al., 2011), AI technology could assist in constructing programmes which are more technically driven: offering interactive, immersive and personalised elements, controlled by professionals with a deep understanding of human functioning, rooted in scientific and evidence-based methods and appropriate theoretical foundations.

In today's working life, with new challenges in how work is performed and broader collaborations across departments within organisations, it is important to further strengthen support or feedback regarding role changes and role ambiguity. Apart from role clarity and development of the role being important in coaching, managers can also focus on supporting their employees in further clarifying priorities, addressing developing needs and support, and encouraging job crafting initiatives.

The findings could inspire coaching practitioners working in organisations to include a Health and Safety perspective in their practice. Practically speaking, a Health and Safety perspective, meaning organisational knowledge on how work factors interact and affect employees, could further strengthen coachees' job-crafting initiatives and also lead to increased or sustained well-being, balancing the demands and resources unique to each coachee's specific work situation and profession. By choice, coachee's in this study focused on work-related issues

which needed developing: either cognitive behavioural aspects or specific root causes.

One suggestion for future practice would be to include the MS-Indicator Tool (HSE, 2001) as an individual screening tool. Even though the questionnaire was not used as such in this study, and is not by design constructed as an individual assessment, the results could lead to a fruitful understanding, for both the coach and coachee, of which factors affect the latter (positive/negative) and which resources and demands are present for each individual.

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Appendix A

Telephone group free text answers to follow up questionnaire.

Free text answers to follow up questionnaire, see Table A1-A7.

Table A1: Question 1, telephone group.

Question 1: Are you thinking differently regarding specific issues as a result of the coaching?
1) *Yes, using my planning skills a little more than before.*
2) *Yes, I see things less serious and instead trying to solve the problems.*
3) *Yes, they are not my problems, I am working in them.*
4) *To some degree.*
5) *Yes, I got some useful ideas.*
6) *Yes, it's a good way to get another perspective on problems.*
7) *I felt I had normal reactions in some situations. It's nothing wrong with me.*
Total answers: 7 (7)

Table A2: question 2, telephone group.

Question 2: After the coaching intervention do you perceive any difference regarding your ability to solve different issues?
1) *I have had a look at my time planning on a higher level, divided it in larger sections.*
2) *Yes, I have taken on more problems and issues. I have solved more problems.*
3) *Yes, I have asked for more support and help from others.*
4) *Yes, I have been more clear to the person I don't have that good relationship with.*
5) *Yes.*
6) *Yes, I am more aware of what I want to achieve.*
7) *I have become clearer in my communication and setting clearer boundaries towards my surrounding.*
Total answers: 7 (7)

Table A3: Question 3, telephone group.

Question 3. Is there anything you have done or planned differently as a result of the coaching received?
1) *I don't know*
2) *Yes, it's easier as mentioned in last questions.*
3) *Yes and no, more like a confirmation that I was thinking the "right" way, and also acted in a good way.*
4) *Yes, some useful ideas but I think it was a little too limited time to make withholding changes.*
5) *Yes.*
6) *I am trying to be more straight forward, which makes it easier for me.*
Total answers: 6 (7)

Table A4: Question 4, telephone group.

Question 4. Were there parts of the coaching that you didn't think was helpful? Do you have any suggestions for improvements?
1) *No*
2*) No*
3) *No*
4) *Was a bit time stressed, think a meeting face to face is more effective.*
5) *Nothing I can think about.*
Total answers: 5 (7)

Table A5: Question 5, telephone group.

Question 5. Would you suggest coaching to a friend or a colleague based on your experiences after this intervention?
1) *Yes.*
2) *Yes.*
3) *Yes.*
4*) Yes.*
5) *Yes.*
6) *Yes, I think it helps*
Total answers: 6 (7)

Table A6: Question 6, telephone group.

Question 6. Would you rather have received face to face coaching instead of receiving it through the telephone?
1) *No.*
2) *Yes.*
3) *No, it worked fine for me.*
4) *Yes.*
5) *Yes.*
6) *Yes.*
7) *I think it becomes a better conversation "face to face", but I was surprised over how well it worked.*
Total answers: 7 (7)

Table A7a: Question 7a, telephone group.

Question 7a. Is there any potential advantage with telephone coaching, you would like to share?
1) *Flexible.*
2) *It is easier to plan the coaching session in your work schedule.*
3) *You are in your normal environment which feels safe.*
4) *Take lesser time, possible to be at another place.*
Total answers: 4 (7)

Table A7b: Question 7b, telephone group.

Question 7b. Is there any potential disadvantage with telephone coaching, you would like to share?
1) *Less personal.*
2) *Some people that have a harder time to open up might have issues when not meeting face-to-face.*
3) *A bit impersonal, you miss the body language for example.*
4) *Not as good communication.*
5) *It is harder to express yourself without body language.*
6) *Harder to read your client when you can't see the facial expressions and body language.*
Total answers: 6 (7)

Appendix B

Internet programme and self-coaching groups free text answers to follow up questionnaire.

Free text answers to follow up questionnaire, see Table B1-B6.

Table B2: Question 2, internet programme and self-coaching group.

Control question 1a. If you used the internet programme / self-coaching, what made you decide to try / use it?	
Internet programme	Self-coaching
1*) Because it is interesting with these kinds of studies.*	1) *Give it a chance to try and see what entailed.*
2) *I don't need to use paper so I can work in the programme.*	
3*) I was curious.*	
Total answers: 3 (5)	1 (3)

Table B1: Question 1, internet programme and self-coaching group.

Control question 1b. If you did not use the programme, what made you decide not to use it?	
Internet programme	Self-coaching
-	1*) I had no immediate area/issue that I felt I wanted to work with.*
-	2) *I didn't understand what to bring up, eliminating the human coach in a coaching process is the wrong way to go.*
Total answers: 0 (5)	2 (3)

Table B3: Question 3, internet programme and self-coaching group.

Question 1. Are you thinking differently regarding specific issues as a result of the coaching?	
Internet programme	Self-coaching
1) *I was reminded about this perspective more frequently at least.*	1) *No*
2) *No*	2) *A bit, it has become more clear for me when I have written down the thoughts I have.*
3) *No*	-
4) *No*	-
Total answers: 4 (5)	2 (3)

Table B4: Question 4, internet programme and self-coaching group

Question 2. After the coaching intervention do you perceive any difference regarding your ability to solve different issues?	
Internet programme	Self-coaching
1*) The difference was that reflection became more prioritized*	1) *No*
2*) No.*	2) *I thought more about the things I identified.*
3) *No.*	-
4) *No.*	
5*) No.*	
Total answers: 5 (5)	2 (3)

Table B5: Question 4, internet programme and self-coaching group.

Question 3. Is there anything you have done or planned differently as a result of the coaching received?	
Internet programme	Self-coaching
1) *Yes sometimes*	1) *No.*
2) *No*	-
3) *No*	-
4) *No*	-
Total answers: 4 (5)	1 (3)

Table B6: Question 6, internet programme and self-coaching group.

Question 4. Were there parts of the internet programme / self-coaching that you didn't think was helpful? Do you have any suggestions for improvements of the method?	
Internet programme	Self-coaching
1) *No.*	1) *No.*
2) *No.*	
3) *The programme felt a bit unprofessional, my suggestion is to make another programme.*	
4) *The feedback data you could write in the programme was limited. Perhaps due to my answers.*	
Total answers: 4 (5)	1 (3)

Table B7: Question 7, internet programme and self-coaching group.

Question 5. Would you suggest internet / self-coaching to a friend or a colleague based on your experiences after this intervention?	
Internet programme	Self-coaching
1*) Yes*	1) *Possibly, could be a good way to break down a problem in smaller manageable chunks.*
2) *I don't understand the question; this study was about how people in the company are feeling. I didn't join because I have problems myself.*	2) *No*
3) *Yes, using the programme can make you reflect on your situation.*	3) *No, it is important to receive feedback concerning your own thoughts (in my opinion).*
4*) No*	
5*) No.*	
Total answers: 5 (5)	3 (3)

Appendix C

Descriptive statistics for the experimental groups combined.

Table C1: Descriptive Statistics for Complete Sample (includes all experimental groups) Characteristics Time Point 1-3: Psychological, subjective well-being.

	Time 1			Time 2			Time 3		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Depression									
Profession									
Engineers	46	4.70	5.34	45	4.27	3.76	40	5.60	5.27
Human Resources	8	4.74	5.00	8	1.25	1.49	5	4.00	5.10
Role									
Leaders	21	2.95	3.83	20	2.80	2.63	17	3.65	4.08
Employees	33	5.82	5.75	33	4.42	4.01	28	6.50	5.59
Gender									
Male	26	4.92	5.10	26	4.92	3.63	20	5.30	4.82
Female	28	4.50	5.46	27	2.74	3.43	25	5.52	5.61
Anxiety									
Profession									
Engineers	46	2.83	3.90	45	1.51	2.10	39	1.85	2.45
Human Resources	8	4.25	3.92	8	1.25	2.12	5	3.20	3.63
Role									
Leaders	21	3.05	3.98	20	1.10	1.65	17	1.29	2.34
Employees	33	3.03	3.91	33	1.70	2.30	27	2.44	2.68
Gender									
Male	26	4.00	4.56	26	1.69	1.67	19	1.58	1.71
Female	28	2.14	2.98	27	1.26	2.43	25	2.32	3.09

Stress									
Profession									
Engineers	46	8.61	5.80	45	7.69	4.88	39	7.64	5.43
Human Resources	8	7.75	4.83	8	6.25	3.45	5	8.80	6.87
Role									
Leaders	21	7.52	5.83	20	6.50	4.72	17	6.94	5.01
Employees	33	9.09	5.50	33	8.06	4.65	27	8.30	5.86
Gender									
Male	26	8.38	5.34	26	7.85	4.59	19	6.63	4.67
Female	28	8.57	5.98	27	7.11	4.85	25	8.64	6.05
Satisfaction with Life									
Profession									
Engineer	46	26.65	4.41	45	27.11	4.99	40	27.78	4.43
HR	7	27.14	2.91	8	27.63	3.20	6	28.17	3.49
Role									
Leaders	21	29.38	2.85	21	29.38	4.08	19	30.32	2.91
Employee	32	24.97	4.08	32	25.75	4.64	27	26.07	4.27
Gender									
Male	26	24.92	4.02	25	25.36	4.87	21	26.29	4.17
Female	27	28.44	3.71	28	28.82	4.04	25	29.12	4.01
Personal wellbeing									
Profession									
Engineer	46	76.30	11.54	46	78.57	11.78	40	79.62	10.83
HR	7	81.02	12.90	8	83.75	6.29	6	84.05	5.74
Role									
Leaders	21	82.99	9.29	21	83.17	11.73	19	83.82	10.43
Employee	32	72.95	11.53	33	76.89	10.37	27	77.65	9.72
Gender									
Male	26	71.98	10.40	26	76.0	11.11	21	75.64	10.01
Female	27	81.69	11.05	28	82.43	10.64	25	84.03	9.20

Note: Psychological wellbeing (depression, anxiety & stress) = DASS-21 scale, Satisfaction with Life as a Whole scale and Personal Wellbeing Index scale.

Appendix D

Table D1: Pairwise Comparisons for ANOVA on Demands.

Group	(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig
Face to face coaching	1	2	-0.05	0.12	.667
		3	-0.02	0.15	.924
	2	1	0.05	0.12	.667
		3	0.04	0.12	.752
	3	1	0.02	0.15	.924
		2	-0.04	0.12	.752
Skype coaching	1	2	-0.26	0.13	.042
		3	-0.45	0.16	.009
	2	1	0.26	0.13	.042
		3	-0.19	0.12	.139
	3	1	0.45	0.16	.009
		2	0.19	0.12	.139
Self-coaching	1	2	-0.45	0.19	.020
		3	-0.36	0.24	.143
	2	1	0.45	0.19	.020
		3	0.09	0.18	.622
	3	1	0.36	0.24	.143
		2	-0.09	0.18	.622
Control	1	2	0.23	0.12	.072
		3	0.09	0.16	.564
	2	1	-0.23	0.12	.072
		3	-0.13	0.12	.270
	3	1	-0.09	0.16	.564
		2	0.13	0.12	.270

Appendix E

Appendix E presents the repeated measures of ANOVA on the dependant variables Control, Manager and Peer support, Relationship, Role and Change.

A repeated-measures analysis of variance (ANOVA) was conducted to compare the experimental groups (face to face, Skype, self-coaching) and DV Control across time. Prior to the analysis, the assumptions of normality, homogeneity of variance, and sphericity were assessed. The data was distributed within the acceptable range for skewness and kurtosis below +1.5 and above -1.5 (Tabachnick & Fidell, 2013). Normality was assessed by conducting Shapiro-Wilk tests on the dependent variable within each experimental group. These tests revealed that normality was not met for all experimental groups (p-values < .05). Homogeneity was assessed by conducting Levene's tests and Box's M test. These tests revealed that homogeneity of variance was not met for all variables (p-values < .05). Sphericity was assessed by conducting Mauchly's test. This test revealed that the sphericity assumption was met (p > .05). Because the assumptions of normality and homogeneity of variance were not met, the Greenhouse-Geisser correction was applied to the statistical test, as this correction is the most robust against violations of these assumptions.

Table E1 displays the results of the repeated-measures effects of the ANOVA. The main effect of time was not significant, F (1.80, 91.83) = 2.65, p = .081, indicating that control did not significantly change over time. The time x group interaction was not significant, F (5.40, 91.83) = 0.89, p = .495, indicating that the change over time in control did not differ by experimental group.

Table E1: Repeated-Measures Effects for ANOVA on Control

Effect	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	2.65	1.80	91.83	.081	0.05
Time x Group	0.89	5.40	91.83	.495	0.05

There is no evidence to reject the null hypothesis 5b which stated that no significant change will be observed in measures of control at the completion of the intervention period and three months' post coaching, in all three conditions (face to face, Skype and self-coaching) compared to control.

Table E2, displays the results of the repeated-measures effects of the ANOVA on manager support. The main effect of time was not significant, F (2, 100) = 0.52, p = .597, indicating that manager support did not significantly change over time. The time x group interaction was not significant, F (6, 100) = 0.35, p = .910, indicating that the change over time in manager support did not differ by experimental group. There was not a significant between-subjects main effect of group, F (3, 50) = 2.21, p = .099, indicating that scores across all time points on manager support did not differ by experimental group.

Table E2: Repeated-Measures Effects for ANOVA on Manager Support

Effect	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	0.52	2	100	.597	0.01
Time x Group	0.35	6	100	.910	0.02

Table E3 displays the results of the repeated-measures effects of the ANOVA on Peer support. The main effect of time was not significant, F (1.95, 99.62) = 1.59, p = .209, indicating that peer support did not significantly change over time. The time x group interaction was not significant, F (5.86, 99.62) = 1.11, p = .360, indicating that the change over time in peer support did not differ by experimental group. There was not a significant between-subjects main effect of group, F (3, 51) = 1.91, p = .140, indicating that scores across all time points on peer support did not differ by experimental group.

Table E3: Repeated-Measures Effects for ANOVA on Peer Support	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	1.59	1.95	99.62	.209	0.03
Time x Group	1.11	5.86	99.62	.360	0.06

Table E4 displays the results of the repeated-measures effects of the ANOVA. The main effect of time was not significant, F (1.79, 91.31) = 2.85, p = .069, indicating that relationship did not significantly change over time. The time x group interaction was not significant, F (5.37, 91.31) =

0.71, p = .629, indicating that the change over time in relationship did not differ by experimental group. There was a not significant between-subjects main effect of group, F (3, 51) = 0.65, p = .585, indicating that scores across all time points on relationship did not differ by experimental group.

Table E4: Repeated-Measures Effects for ANOVA on Relationship.

Effect	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	2.85	1.79	91.31	.069	0.05
Time x Group	0.71	5.37	91.31	.629	0.04

Table E5 displays the results of the repeated-measures effects of the ANOVA on role. The main effect of time was significant, F (1.58, 80.74) = 3.80, p = .036, indicating that role did significantly change over time. Pairwise comparisons revealed that role at Time 1 (M = 3.84, SE = 0.09) was significantly lower than at Time 2 (M = 3.98, SE = 0.08, p = .043), and at Time 3 (M = 4.06, SE = 0.08, p = .032). The time x group interaction was not significant, F (4.75, 80.74) = 0.20, p = .957, indicating that the change over time in role did not differ by experimental group. There was no significant between-subjects main effect of group, F (3, 51) = 0.80, p = .500, indicating that scores across all time points on role did not differ by experimental group.

Table E5: Repeated-Measures Effects for ANOVA on Role

Effect	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	3.80	1.58	80.74	.036	0.07
Time x Group	0.20	4.75	80.74	.957	0.01

Table E6 displays the results of the repeated-measures effects of the ANOVA on change. The main effect of time was significant, F (1.90, 97.00) = 5.70, p = .005, indicating that change did significantly change over time. Pairwise comparisons revealed that change at Time 3 (M = 3.63, SE = 0.12) was significantly higher than at Time 1 (M = 3.27, SE = 0.12, p = .004), and at Time 2 (M = 3.39, SE = 0.13, p = .018). The time x group interaction was not significant, F (5.71, 97.00) = 0.37, p = .888, indicating that the change over time in change did not differ by experimental group. There was no significant between-subjects main effect of group, F (3, 51) = 0.40, p = .753, indicating that scores across all time points on change did not differ by experimental group.

Table E6: Repeated-Measures Effects for ANOVA on Change

Effect	*F*	Hypothesis *df*	Error *df*	Sig.	Partial Eta Squared
Time	5.70	1.90	97.00	.005	0.10
Time x Group	0.37	5.71	97.00	.888	0.02

Appendix F

Descriptive statistics, frequency and words associated with goal setting.

Table F1: The frequency of occurrence of words most used in documented goals collected in the GAS spreadsheet.

Word	Frequency	Weighted Percentage (%)
work	94	7,96
role	51	3,96
assignments	32	3,08
team	30	2,88
need	32	2,69
time	27	2,60
becoming	30	2,48
development	28	2,21
thoughts	25	1,88
create	21	1,77
manager	23	1,77
support	16	1,54
plan	18	1,51
clear	24	1,48
straining	22	1,37
meetings	14	1,21
activity	12	1,06
organisation	12	1,00
balance	10	0,96
life	10	0,96
open	18	0,95
competence	10	0,90
communicate	10	0,88
goal	10	0,87
talk	9	0,87
clarifying	8	0,77
self	8	0,77
structured	9	0,74
confidence	9	0,71
boundaries	7	0,67
personal	7	0,67

Appendix G

Correlations between Demographic Variables and Work Factors.

Demographic Variable	Demands	*p*-value	Control	*p*-value	Relations	*p*-value	Support Manager	*p*-value	Support Peer	*p*-value	Role	*p*-value	Change	*p*-value
Gender	.08	.50	-.24*	.039	.05	.69	.-.08	.52	.02	.87	-.04	.74	-.04	.72
Age	.05	.65	.02	.84	-.064	.59	.20	.09	.07	.58	.32**	.006	.10	.41
Role	.10	.38	-.14	.24	.15	.19	-.02	.86	-.09	.44	-.25*	.033	-.24*	.038

Table G1: Correlations of Demographic Variables, Work Factors: Demands, Control, Relation, Support – manger, Support-peer, Role and change. *Note*. *N* ranged from 75 to 73 participants. Correlations are 2-tailed. ** correlation significant < .01, * correlation significant < .05.

APPENDIX H

Agreement: Coaching

Research project – *Can different applications of solution focused cognitive behavioural coaching enhance wellbeing?*

I agree to take part in the above City University research project. I have had the project explained to me, and I have read the Explanatory Statement, which I may keep for my records. I understand that agreeing to take part means that I am willing to:

- be interviewed by the researcher
- receive coaching
- complete questionnaires asking me about for example wellbeing and different psychological and physiological symptoms related to stress and my views of the coaching I received.
- make myself available for a further interview should that be required

Data Protection

This information will be held and processed for the following purpose:

1) To process data from the participants in the study that aims to investigate if coaching can increase wellbeing and reduce stress.
2) The research results will be published in a research report and in different research journals and discussed and presented at conferences and since the results are presented in an anonymous way you will not be identified as a person.

I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. No identifiable personal data will be published. The identifiable data will not be shared with any other organisation.

I agree to City University recording and processing this information about me. I understand that this information will be used only for the purpose(s) set out in this statement and my consent is conditional on the University complying with its duties and obligations under the Data Protection Act 1998 and PuL 1998.

Withdrawal from study

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

Name: .....(please print)

Signature: .....Date: .....

APPENDIX I

Explanatory Statement

Research project – *Can different applications of solution focused cognitive behavioural coaching enhance wellbeing?* Ulrika Hultgren, PhD-student and licensed psychologist, City University, London

We would like to invite you to take part in a research study. Before you decide whether you would like to take part it is important that you understand why the research is being done and what it would involve for you. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information.

Objectives
This research project aims to investigate whether different applications of coaching can increase well-being and reduce stress in the workplace. The method used in this study is a cognitive behavioral coaching (KBC) that is time-limited, goal-oriented and focused on "here and now" and is based on a collaborative relationship that helps individuals focus on problem-solving in a structured and systematic way. The primary purpose of the coaching is to help develop action plans for change, and to increase self-awareness, where, by examining relationships that exist between thoughts, feelings, behavior and the environment, can set goals and structure them in a way that is solution-focused, rather than through problem analysis. There are 3 different research groups and one control group, each consisting of 30 participants. The groups will receive coaching face to face, via Skype and a computerized coaching program. The control group does not receive any interventions in the meantime, but is asked to fill in the same questionnaire as the research groups. When the time for control is over, the participants in the control group will be offered participation in one of the research groups. The research groups will also be asked to fill in questionnaires with questions about their working conditions as well as mental and physical well-being. The participants in this research project are mainly staff from [redacted]

The control group receives no interventions but will be asked to complete the same questionnaires as the research groups. After the time of control has ended the participants in the control group will be offered to participate in the face to face group. The groups will also be asked to complete online questionnaires about their working conditions and about their psychological and physical wellbeing.

The questionnaires will also help to see which psychological needs the participants have in addition to coaching. After the surveys are analyzed, the person will either be asked to continue the participation or will be offered to receive other help through occupational health or primary care. You can always ask for guidance through occupational health care on how to apply for additional treatment.

You have been asked to participate in:
□ face to face coaching
□ Skype coaching
□ computerized coaching
□ waiting list control

How will it be done?
Individual coaching (coaching and telephone coaching): The period of coaching will last for about 6-8 weeks, as a participant you will receive 1-5 coaching sessions, and each session is approximately 45 min.

Computerized self-coaching: the period of coaching will last for about 6-8 weeks, as a participant you can use the program up to 5 coaching sessions, and each session is about 45 min long.

Waiting list control: The control group receives no interventions in the meantime in control but is asked to fill in the same questionnaire as the research groups. When the time for control is over, the participants in the control group will be offered participation in one of the research groups.

All groups will also be asked to answer different questionnaires at three different times. You will be contacted for a short telephone interview or follow-up survey three months after you finish the coaching.

Security and privacy
Research data consisting of your coded answers from the surveys are protected by security alarms, and data is stored on a secure server outside the company, no names or personal numbers are linked to the data. No names or details of the participants are used, a code and number will be used on the documents to ensure the integrity of the participants. The individual data will be destroyed when the research is completed. Ulrika Hultgren and the research group at City University, London, UK are the only ones who have access to individual data, [redacted] is responsible for processing the personal data. Personal data controller is leg. psychologist Ulrika Hultgren who is the only one who has access to the code key.
Computerized self-coaching: All data provided by the participants in the computerized coaching group (the online coaching program) is accessible only to each individual participant and after you have completed a coaching session you can print a summary of the coaching session for personal record.

Participation
Your participation in the study is voluntary, which means that you can choose not to participate in all or part of the project, and that you can end your participation at any stage you want from the project without being disadvantaged in any way. Your exit from the study will not affect future treatment or employment. It is up to you to decide if you want to participate. If you decide to participate, you will be asked to sign a consent. If you choose to participate, you are still free to withdraw from the study at any time without giving a reason, all the data you provided will then be destroyed and you can then contact Ulrika Hultgren.

What happens after the study finishes?
After the research study is completed you will be able to get a copy of the research results, by contacting the researcher Ulrika Hultgren. The research results will be published in a research report and also in various research journals and discussed and presented at conferences and since the results are presented anonymously, you will not be identified as a person.

Feedback
The results of the survey on working conditions, summarized anonymously, will also be used to point out which areas of the organization can contribute to stress. The results will be presented and broken down to departmental level in a separate report if the department consists of at least 10 participants and is notified to your leader.

Supervision
The study is supervised by Professor Stephen Palmer PhD, DPsych, Dr Siobhain O'Riordan PhD, who are members of the research team at City University London, UK.

Further use of data
The results of the study can be used by the research group and further analyzed, but no individual data will be used solely by unidentified group data, and only after renewed and approved examination by the Regional Ethics Review Board.

The University complaints clause: If you would like to complain about any aspect of the study, City University London has established a complaints procedure via the Secretary to the University's Senate Research Ethics Committee. To complain about the study, you need to phone 020 7040 3040. You can then ask to speak to the Secretary to Senate Research Ethics Committee and inform them that the name of the project is. Can different applications of solution focused cognitive behavioural coaching enhance wellbeing?

The University's complaint clause: If there is one aspect of the study that concerns you, you can complain. City University has established a procedure for complaints made through the secretary of the Research Ethics Committee. To complain about the study, you must call + 44 (0) 20 7040 3040. You can then ask to speak to the secretary of the Committee for Psychological Research Ethics and inform about the name of the project which is: Can different applications of solution-focused cognitive behavior coaching enhance well-being? You can also write to the secretary: Anna Ramberg, secretary of the Senate's Ethics Committee (the Senate's Ethics Committee is the name of the committee that has overall responsibility for ethics issues at City University).

Anna Ramberg, Secretary to Senate Research Ethics Committee
Research Office, E214, City University London, Northampton Square, London EC1V 0HB.
E-mail: anna.ramberg.1@city.ac.uk

If you have any questions please don't hesitate to contact Ulrika Hultgren
E-mail: Ulrika.hultgren.1@city.ac.uk, Telephone: [redacted]

Swedish contact at your company: [redacted]

Who has reviewed the study?
This study has been approved by City University London, Psychology Research Ethics Committee and the Regional Ethics Committee in Göteborg, Sweden.

Appendix J

Presentation of separate subscales, Personal Wellbeing Index.

Table J: Personal wellbeing subscales.

	Time 1			Time 2			Time 3		
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Standard of living									
Face to face coaching	20	80.0	15.9	21	82.4	13.4	19	83.2	12.0
Skype coaching	21	79.0	12.2	21	82.4	11.8	18	80.6	11.1
Self-coaching	11	80.9	11.4	11	82.7	14.2	8	78.8	10.0
Control	22	80.9	10.2	21	79.5	12.0	20	77.0	13.4
Personal health									
Face to face coaching	20	70.0	23.2	21	69.0	18.1	19	74,7	18.7
Skype coaching	21	71.4	17.0	21	77.1	11.9	18	76.1	15.0
Self-coaching	11	75.5	11.9	11	77.1	11.9	7	77.5	10.3
Control	22	75.9	11.8	21	73.8	13.6	20	75.5	14.7
Achieving in life									
Face to face coaching	20	76.5	15.0	21	80.0	13.0	19	82.1	14.0
Skype coaching	21	71.0	16.0	21	73.8	16.6	18	78.3	14.7
Self-coaching	11	80.9	17.0	11	80.0	14.1	8	77.5	12.8
Control	22	77.3	13.9	21	76.7	11.6	20	80.0	14.5
Personal relationships									
Face to face coaching	20	81.5	16.6	21	72.4	27.7	19	85.5	14.3
Skype coaching	21	72.4	19.2	21	78.1	21.6	18	82.8	16.0
Self-coaching	11	60.9	17.0	11	70.9	19.2	8	77.5	12.8
Control	22	72.3	21.8	21	74.8	22.0	20	80.5	17.9
Feeling safe									
Face to face coaching	20	83.5	16.6	21	86.2	14.0	19	83.2	19.2
Skype coaching	21	86.2	13.7	21	89.5	15.6	18	85.6	16.5
Self-coaching	11	83.6	12.9	11	87.3	12.7	8	83.8	13.0
Control	22	82.7	14.5	21	88.6	12.0	19	86.0	10.5
Part of community									
Face to face coaching	20	78.0	13.2	21	75.7	13.6	19	78.4	16.8
Skype coaching	21	71.4	16.8	21	76.2	18.8	18	74.4	15.8
Self-coaching	11	76.4	12.7	11	78.2	16.0	8	75.0	10.7
Control	22	76.4	15.0	21	77.1	18.8	20	77.0	13.0
Future security									
Face to face coaching	20	79.0	1.71	21	81.4	1.56	19	75.3	2.22
Skype coaching	21	76.2	1.91	21	82.9	1.86	18	78.9	1.88
Self-coaching	11	80.9	1.64	11	86.4	1.29	8	85.0	1.41
Control	22	81.8	1.14	21	80.0	1.45	20	82.5	1.07

Appendix K

Face to face coaching group interview answers, three months' post coaching, company healthcare group. Initial coding protocol. Free text answers to follow up questionnaire, see Table K1-K3.

Table K1: Question 1, Face to face coaching group, initial coding protocol.

Question
Q1: Has the coaching that you received effected your life/work life?
a) Yes, Creating awareness about different areas. It's good to talk about areas at work and toss around different subjects.
b) Yes, to be able to reflect, new views, self-reflection.
c) Opened my eyes to what have happened.
When you are asked a question it makes you think one step further.
So yes, definitely, it's like a new start, I really understand how people are feeling now after experienced hardships in life.
The biggest insight was that I am in control over my own life, that I can make choices.
d) Yes, that I received a lot of support when I spoke to others, and that it was ok to feel the way I did.
e) I put word on things I haven't been aware of before.
f) I think differently.
g) Yes, see 3)
h) Affected me more on personal level than my work.
Generally, more careful putting demands on myself.
A goal is to feel well in my life and others as well around me, both in my life and work life.
More important to be with my friends and family and take time off, not working all the time.
Doubtful I would have done that before the coaching.
i) I have ups and downs still.
j) Yes, what depends on what is more unclear. But I have changed that's clear.
k) I see things differently now; I now know I can't take everything on myself.
Before the coaching I had high demands on myself.
I saw it as a failure if I could not deliver in time, but I have limits as everyone else, so now I don't think that way.
I have become calmer both in my private life as well as in my work life. I worry less.
l) Thinking more about existential questions now, and how to move forward.
I don't see a straight line anymore; these kind of thought changes takes energy.
What do I want to do with my life?
Takes energy also when you get the freedom of choice, life becomes more of an exploration.
Get a chance to reflect over things, and the conversation is more about a conversation with myself.
m) Yes, looked forward to the sessions.
I was feeling really unwell at the start.
You never told me what to do, I had to come to those conclusions myself.
n) Yes, better to coordinate with others now.
Clearer in communication and have removed the stress factor. Listening more to what I want myself.
I am not just doing things cause other expect me to.
o) Yes, see Q2.

Table K2: Question 2, Face to face coaching group, initial coding protocol.

Q2: Are there any other areas in your life that have been affected by the coaching you received?
a) Hard to say. b) Feel calmer, I have more control over things. c) Life at large, it's a wholeness. d) - e) Thinking more about myself f) Helped me more in the private life, it's easier for me to talk to people. Before I took it more aggressively. Now calmer and letting others talk as well, and together coming up with solutions mutually. My manger tells me I am less aggressive. h) see Q1 i) The feeling of stress is gone; my memory is still problematic at times. j) Decided I have to have some fun as well, before I was so focused on showing all the problems at work. k) I changed relationship because I became aware of the need for it in the coaching and I got stronger so I could end it. I found a calmness in myself. l) You have not told me what I should do. The consequence of what I have thought myself, is in focus. I wanted an answer, a programme, this is what you should do. Take programme 11b do this and that, then we know the result will be this. The simple way. You never gave me that, which lead to that I had to take a look at the solutions myself and to a kind of awakening for me. m) I am so calm now, before I was more negative and others thought so too. I don't react to small things anymore, and I am not the least worried about being myself anymore, I can speak my mind. I was always on high alert before, now I have a different relationship with my daughter too. n) Trying to avoid energy thief's, saying no to assignments as well, if someone gets upset it doesn't upset me. Worry less about things at work. I want to do things I enjoy not just what others tells me to do. Doing more fun things with my family as I am now focusing on that too. When you can affect something its more positive and you get out of a negative thought spiral. Then it's easier to do things at home and at work. o) Yes, affected personal relationships that have become closer.

Table K3: Question 3, Face to face coaching group, initial coding protocol.

Q3a: Have the effect of the coaching you received lasted? If Yes: In what way do you notice the effects?
a) I have discovered how to change things myself b) I have become clearer in my communication, I put my job at stake and said exactly what I thought about how we organise work, who does what, who's in charge, I spoke my mind and became a leader after that. c) I learn more each day, always been good at questioning things, but now I am more open minded. I chose myself which level I want to be on. at. I have broadened my view of my work or the culture at work, it's easy to 'fall into' the culture. I've become more self-confident and feel more secure within myself both privately and at work.

I now choose which direction to take.

d) It worked well all the way to my vacation then when coming back to work everything was moving so fast and got increased work demands and I went back to my 'old' way of working again.

e) A lot of thoughts, not sure how much. I got reassurance that my thought was ok, and I have analysed the thoughts.

I feel more self-confident today because I also feel better. Decisions I took have strengthened me to move on in life.

I now reflect on things that happens in a more realistic way instead of blaming myself and feeling like a failure.

f) Yes, people around me says I am easier to talk to and they are not afraid to approach me.

g) I have meetings now with [redacted] without feeling stressed concerning the discussions, like I did before, was hard for me before.

I structure things now, one thing at a time.

Before I only thought about calling [redacted] in other countries, now I am doing it and can even throw in a joke. No problems anymore talking in different languages.

The reason is me, more at ease and relaxed and can make a joke.

h) I don't feel as stressed as before regarding things that I need to do in the future.

I am doing priorities.

I would not have been where I am today if I haven't received the coaching sessions, I have other thoughts and behaviour now. Before I took everything on myself, worked in the evenings and took all the changes on my own shoulders.

j) Realised I can't live like I did before.

Been so much negativity at work and felt hunted.

I can't take everything on myself.

Now when I get an assignment I think that it takes the time it takes.

k) I don't feel sorry for myself anymore because I had a look at myself. I don't need to do everything to get respect from others.

l) yes see Q1&2

m) I don't get angry anymore over "small" things at work, as I usually did before.

I accept I can't change everything and instead e in a calmer way.

m) What others thinks and says is not so frightening anymore. I revaluated things in my relationships, I've become more clear and I am not using gloss overs anymore.

I say what I feel without becoming stressed. I am joking more as well.

Before I got sad and thought it was my fault if things did not work out the way it was suppose too, and I said nothing to anyone. Now I can speak my mind and I feel good about it.

I have also taken contact with my friend ´s again and taking better care of myself.

n) I feel better but I still have the need to recover a bit more.

But I am more actively controlling my time.

o) Yes on long term.

Can motivate myself in another way.

Also reflect in another way.

I am more calm and methodological. Not a time optimist anymore.

Appendix L

Depression Anxiety Stress Scale (DASS-21).

DASS21

Name: *Date:*

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree, or a good part of time
3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Source: http://www.psy.unsw.edu.au/dass/

Satisfaction with Life as a Whole and Personal Wellbeing scale.

Satisfaction with Life as a Whole and the PWI Scale (Written Format)

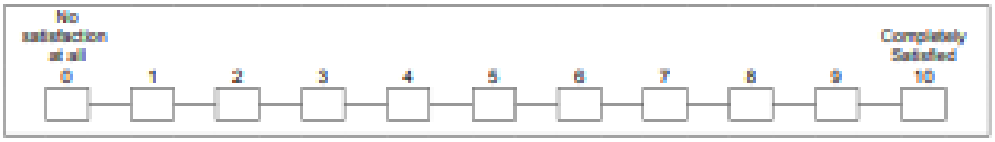
4.1 Instructions for Written Format (i.e. test items answered in written questionnaire)

The following questions ask how satisfied you feel, on a scale from zero to 10. **Zero** means you feel no satisfaction at all and **10** means you feel completely satisfied. "

4.2 Test Items

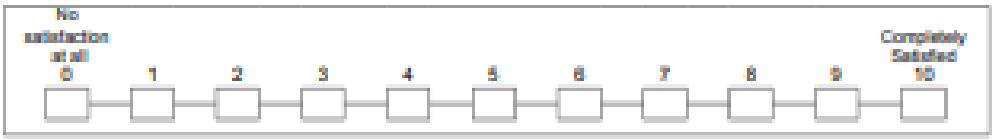
Part 1 [Optional Item]

1. "Thinking about your own life and personal circumstances, how satisfied are you **with your life as a whole ?"**

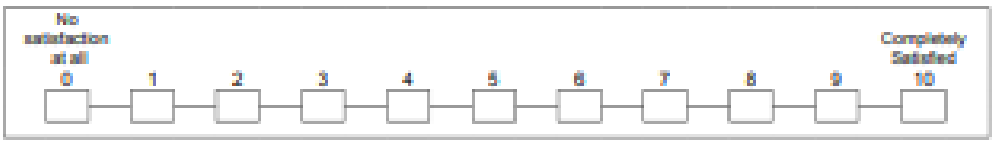


Part 2

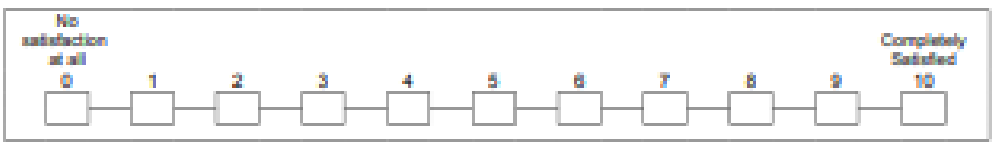
1. "How satisfied are you **with your standard of living ?"**



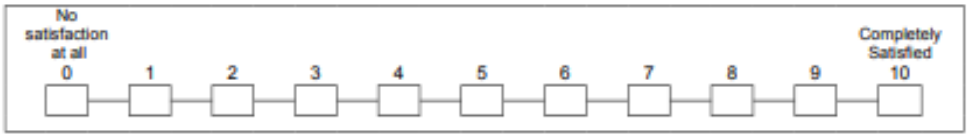
2. "How satisfied are you **with your health ?"**



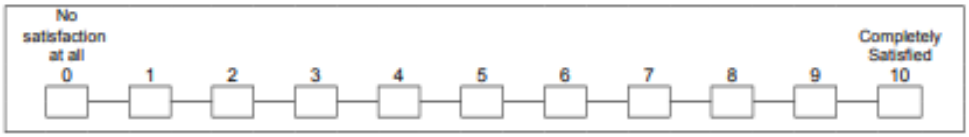
3. "How satisfied are you **with what you are achieving in life ?"**



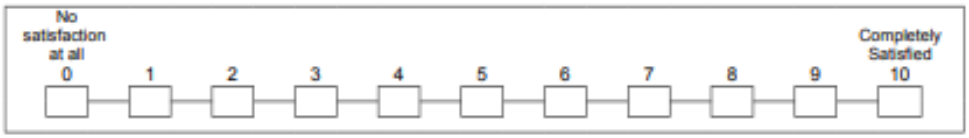
4. "How satisfied are you **with your personal relationships ?"**



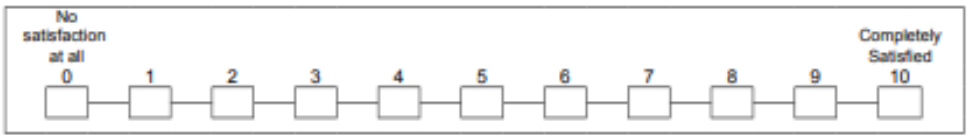
5. "How satisfied are you **with how safe you feel ?"**



6. "How satisfied are you **with feeling part of your community ?"**

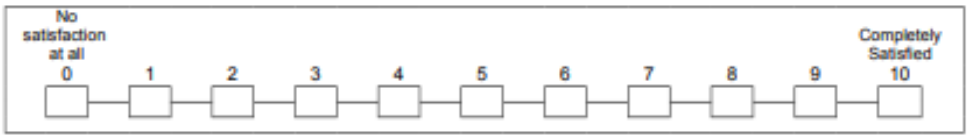


7. "How satisfied are you **with your future security ?"**



[Optional item]

8. "How satisfied are you **with your spirituality or religion ?"**



Paper: Hultgren, U., Palmer, S., & O'Riordan, S. (2013). Can cognitive behavioural team coaching increase well-being? The Coaching Psychologist, 12(2), 67-75.

Original Paper

Can cognitive behavioural team coaching increase well-being?

Ulrika Hultgren, Stephen Palmer & Siobhain O'Riordan

This paper aims to describe a model for cognitive behavioural team coaching (CBTC), derived from existing cognitive behavioural theories and individual coaching models. In an organisational context coaching a team to increase well-being, instead of separate individuals, would appear on face value to be more effective. However, it is appropriate to explore what the existing literature can tell us about team coaching, well-being and stress as well as the possible relationships between these areas. There also seems to be a need for clarification of the term 'team coaching', so it can be differentiated from other team activities and this is a theme that will be explored in this paper.

A proposed pilot study is also described, aiming to investigate if CBTC can increase well-being and lessen strain among team members in an organisational setting by using an individual CBC model adapted to team conditions.

Keywords: *Well-being; team coaching; cognitive behavioural team coaching; stress; coaching psychology.*

Well-being, stress and innovation

THERE ARE a vast number of research studies regarding what constitutes high performance and innovative teams. Published research regarding connections between teams, coaching, well-being and stress, are fewer.

Teams consist of individual team members and research regarding individuals is more accessible when it comes to well-being and stress. The World Health Organisation (WHO) states in the *Mental Health Declaration for Europe* that 'mental health and mental well-being are fundamental to the quality of life and productivity of individuals, families, communities and nations, enabling people to experience life as meaningful and to be creative and active citizens' (WHO, 2005). Well-being is a focus both in research and by governments, for example, countries in the EU measure their inhabitants' well-being regularly. Well-being as a term inhabits different aspects of an individual's perception of well-being and DEFRA (2013) define well-being as existing of two dimensions. Firstly as subjective well-being in terms of how people think and feel about their own well-being, like life satisfaction, positive affect, and a judgement on whether life is meaningful. The other dimension is objective well-being, that's based on assumptions about basic human needs and rights, like physical health and how safe they feel. Mental well-being is a concept that is used to describe overall well-being and is more than just the absence of mental illness. It is a positive state of mind and body, underpinned by social and psychological well-being (DEFRA, 2013). Well-being and its connection to work indicate that job satisfaction is strongly positively associated with life satisfaction, even after controlling for satisfaction with other aspects of one's life (Rice et al., 1980).

Work-related stress on the other hand, has become an, increasingly problematic area. The Health and Safety Executive (HSE) defines work-related stress as a harmful reaction that people have to undue pressures and demands placed on them at work, and new statistics show that the prevalence of stress in 2011/12 was 428,000 cases (40 per cent) out of a total of 1,073,000 cases for all work-related illnesses in Great Britain (see HSE, 2013). It is not just absenteeism which can be

problematic. The Sainsbury Centre for Mental Health (2007) suggests that most people suffering from stress continue to work, but may struggle with concentration and effective decision making, estimating that 'presenteeism' (functioning at less than optimum capacity while at work) costs UK businesses £15.1 billion per year in reduced productivity. Presenteeism accounts for 1.5 times as much working time lost as absenteeism and costs more to employers because it is more common among higher-paid staff (Sainsbury Centre for Mental Health, 2007). Effects of stress are not merely psychological in nature; stress can also affect physical and social health, innovation and productivity (e.g. Kawakami & Haratani, 1999; Kristensen, 1996; Stansfeld et al., 1999; Devereux et al., 1999).

Research on stress and its impact on an individual level is well founded. Although, the areas of how teams are affected by working under straining conditions or in relation to teams and well-being are less researched. It has been argued that, 'The limited research that has examined the association between teams and stress is not definitive regarding the relationship between the two' (Cruz & Pil, 2011, p.1266). The research on teams is mainly focused on team performance and team innovation in combination with well-being and stress. Results from a study researching the impact of team climate for innovation on well-being and stress shows that there was a positive relationship between perceived team climate that supports innovation and individual well-being, and that there was a negative relationship between team climate and stress as well as between well-being and stress, the author points out that well-being is a link between team climate for innovation and stress reactions (Dackert, 2010). Cruz and Pil (2011) concluded, focusing on the connection between team characteristics and stress, that team characteristics are significantly associated with team member perceptions of job control, job demands, and stress. In other words that team characteristics in itself, in this case, the level of autonomy and intra team interdependence, effect the level of stress in teams, and the authors suggests that teams with a low degree of autonomy and a high degree of intra team independence are associated with lower levels of stress. Another study about team coaching and innovation in 97 work teams indicated 'that the relationship between team coaching and team innovation is mediated by team goal commitment and support for innovation. Specifically, team coaching had a direct effect on support for innovation and an indirect effect on behavioural team process through team goal commitment' (Rousseau et al., 2013). The practical implications suggested in this study were that organisations may favour, by applying interventions aimed at developing team leaders' coaching skills, treating coaching as a core managerial responsibility (Rousseau et al., 2013, p.344).

Teams

Working in a team can be very rewarding and satisfying both for the individual and the organisation, and teams are a salient feature of modern organisations (Van Mierlo et al., 2007). The basic idea is that a team sharing and discussing ideas can solve problems or find solutions that require different specialties of knowledge, which are more effective than one person. The way we organise teams is changing and today team members can work in multiple teams, time zones, different cities and countries, and 'as electronic technologies for communication and co-ordination become more powerful and pervasive, teamwork-at-a-distance is becoming more the rule than the exception' (Hackman, 2011, p.5). One method that is used to develop teams, is team coaching. The term team coaching though is used for a variety of situations and is commonly associated with methods like facilitating in teams, coaching used together with different team assessments, team development and team building activities.

A team is not the same as a group of people. Historically the word group was first

on the scene and used in the literature to describe a group of people belonging together in different ways. Later a need for a more specific definition emerged describing a more closely related work group and the word team was born. A work group can for example consist of individuals that do not necessarily work together to solve specific tasks or have mutual goals, where one person's performance has no real effect on another's. Work groups are used in organisations when performance relies on individual work products. One of the most commonly used definitions of a team is that of Katzenbach and Smith (1993) that states that '...a team is a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable' (p.45). Another widely used definition is '...a group of people that are independent, with respect to information, resources and skills and who seek to combine their efforts to achieve a common goal' (Thompson, 2004, p.4). A team can also be organised in different ways for example virtual teams, 'small temporary groups of geographically, organisationally and/or time dispersed knowledge workers who co-ordinate their work predominantly with electronic information and communication technologies in order to accomplish one or more organisation tasks' (Ale Ebrahim et al., 2009, p.1578). This might include work teams that are responsible for creating tangible products and services (Devine, 2002) and project teams consisting of members usually belonging to different groups or teams, functions are assigned to activities for the same project and used for a defined period of time then disbanded. Another term used to describe a way of organising teams is cross – functional teaming, where a group of people are brought together across the organisation, with different functional expertise working toward a common goal (Krajewski & Ritzman, 2005). At the same time it is becoming more common to teamwork-at-a-distance with the help of electronic tools (Hackman, 2011).

Cognitive behavioural coaching

Cognitive behavioural coaching (CBC) has by tradition mostly been used in a one-to-one setting where it has been shown to have good effect on, for example, well-being and increased goal striving. Cognitive behavioural coaching (Neenan & Palmer, 2001; Neenan & Dryden, 2002; Palmer & Szymanska, 2007; Richard, 1999; Williams et al., 2010) is derived from the well-established principles and practice of cognitive-behavioural theory and therapy (e.g. Beck, 1976, 2005; Ellis, 1962). Palmer and Szymanska (2007) describe cognitive behavioural coaching as 'an integrative approach which combines the use of cognitive, behavioural, imaginal and problem solving techniques and strategies within a cognitive behavioural framework to enable coachees to achieve their realistic goals' (2007, p.86).

Research into cognitive behavioural coaching has found it to be effective for a range of issues including increasing goal striving, well-being and hope; reducing stress and depression; tackling perfectionism and self-handicapping (e.g. Grant, 2001, 2003, 2008; Grant, Curtayne & Burton, 2009; Green, Oades & Grant, 2006; Green, Grant & Rynsaardt, 2007; Gyllensten et al., 2010; Grbcic & Palmer, 2006; Kearns, Forbes & Gardiner, 2007; Kearns, Gardiner & Marshall, 2008; Libri & Kemp, 2006).

Team coaching can be defined as 'a direct interaction with a team intended to help members make co-ordinated and task-appropriate use of their collective resources in accomplishing the team's work' (Hackman & Wageman, 2005, p.269). David Clutterbuck (2007) defines team coaching as a process of 'helping the team improve performance and the processes by which performance is achieved through reflection and dialog' (2007, p.77). Hackman and Wageman (2005) proposed a new theory for team coaching, a team coaching model focusing on three features, namely, the func-

tions that coaching serves for a team, specific times in the process where coaching interventions are most likely to have effect, and thirdly, under what conditions team coaching is likely to have effect and when not. Some of the previous team coaching models were built on an interpsychological perspective focusing on the quality of the relationships in teams (Hackman & Wageman, 2005), what they proposed was a shift in perspective to what research had found was the factors or group interactions that enhance team performance and effectiveness. These factors were; the level of effort from team members collectively carrying out tasks, the importance of the tasks for the performance strategies the team uses at work and thirdly, knowledge and skills that the members bring into work (Hackman & Morris, 1975; Hackman & Walton, 1986).

To structure the team coaching process Clutterbuck (2007) describes seven important steps: Identify the need to improve/change, observe and gather evidence, motivate to set and own personal improvements targets, help to plan how to achieve those targets, create opportunities to practice the desired skills, observe in action and give objective feedback and help the team to work through setbacks. Other important areas in need of consideration when working with team coaching include the 'readiness for coaching' (Hackman & Wageman, 2005, p.275), which means the degree to which the issues to be addressed are among those naturally on team members' minds at the time of the intervention. Further to this, the degree to which the team as a whole is not at that time preoccupied with more pressing matters and that coaching interventions are more effective when they address issues a team is ready for at the time they are made (Hackman & Wageman, 2005). There are three different time points in the life of a task-performing team when members are likely to be especially open to coaching interventions: the beginning, when a group is just starting its work, the midpoint, when half the work has been done and/or half the allotted time has passed (Gersick, 1988, 1989) and at the end, when a piece of work has been finished or a significant subtask has been accomplished (Kozlowski et al., 1996). Another important factor to take into account is the creation of the right climate for team coaching mainly by addressing factors like: unresolved matters or issues, creating psychological safety: building openness and trust by preparing the team for the team coaching and timing; making sure that the team has the time for team coaching and mastering time management issues (Cluttberbuck, 2007).

A proposed model for CBTC

As suggested above, research into CBC suggests that it can be used to enhance well-being and prevent stress and to create a CBTC approach derived from individual coaching methods and practices. However, the method needs some revising and additional elements. Combining existing knowledge, models for CBC and important key areas concerning team coaching, as proposed by Hackman and Clutterbuck, could include different steps and a clear structure for working with goals and solving issues that are relevant to a particular team.

For example, it would include a planning process with the coach and team leader/leader to share information about the team coaching process and the elements it would include such as time management planning so that solutions for change that the team chooses to work with are prioritised between the coaching sessions. Another important area concerning planning is that the coaching sessions themselves are not moved too many times so time between meetings become prolonged, losing momentum and the created team process where team members might forget about what the previous sessions was all about. Questions relating to how management will handle issues that are brought forward by the team that are more organisational in essence, also needs to be addressed. Making sure that the

team has the actual time to engage in team coaching and not at the finish line is also an important consideration.

Clutterbuck's (2007) model provides structured differenced steps much like the PRACTICE model of coaching developed by Palmer (2007) that integrates cognitive solution-focused strategies and techniques (e.g. Palmer, 2008; Williams, Palmer & Wallace, 2011). PRACTICE has been used for business, performance, executive, career, redundancy, health and life/personal coaching, and also to aid stress management, counseling and psychotherapy (Palmer, 2007).

The framework has been adapted to different languages and cultures (e.g. Dias et al., 2011) and includes seven steps in its solution-focused approach (Palmer, 2011):

1. **Presenting issues**
   What's the problem or issue or concern or topic you wish to discuss?
   What would you like to change?
   Any exceptions when it is not a problem, issue or concern?
   How will we know if the situation has improved?
   On a scale of 0 to 10 where '0' is nowhere and '10' is resolved, how near are you now today, to resolving the problem or issue?
   Any distortions or can the problem or issue be viewed differently?
   Can you imagine waking up tomorrow morning and this problem (or issue or concern) no longer existed. What would you notice that was different?

2. **Realistic, relevant goals developed**
   What do you want to achieve?
   Let's develop specific SMART goals (e.g. SMART goals).

3. **Alternative solutions generated**
   What are your options? Let's note them down.

4. **Consideration of consequences**
   What could happen?
   How useful is each possible solution?
   Let's use a rating 'usefulness' scale for each solution where '0' is not useful at all, and '10' is extremely useful.

5. **Target most feasible solution(s)**
   Now we have considered the possible solutions, what is the most feasible or practical solution(s)?

6. **Implementation of chosen solution(s)**
   Let's implement the chosen solution by breaking it down into manageable steps.
   Now go and do it!

7. **Evaluation**
   How successful was it?
   Rating 'success' scale 0 to 10.
   What can be learnt?
   Can we finish coaching now or do you want to address or discuss another issue or concern?

The PRACTICE model offers a structured solution-focused framework that could prove useful in an organisational and team setting. The inclusion of solution-focused techniques into the cognitive-behavioural framework helps orientate coaching towards personal strengths and solution construction, rather than problem analysis (Grant, 2003). Adapting PRACTICE to team coaching conditions would include planning for how to structure and balance the process of the individual team member and the team when it comes to, for example, presenting issues, goals and solutions generated. PRACTICE could provide the structure needed to clearly support goal attainment for a team. The coach would create possibility for all team members to have the opportunity to speak their mind but also to keep the structure and move the process forward. A clear communicated structure like PRACTICE could help the team focus on mutually decided goals and work towards not becoming overwhelmed by all issues that might be present. It would also have to include a team-based implementation process, dividing the team into smaller

groups handling one or more prioritised goals. This could encourage different solutions to be communicated and addressed by all. Since PRACTICE is built on a cognitive-behavioural, solution-focused coaching framework goal attainment during the coaching process is best facilitated by understanding the consensual relationships that exist between thoughts, feelings, behaviour, and the environment. All issues are documented, so even though one area cannot be addressed or is not at that time prioritised in the CBTC, the team can address it at a later date. With built in focus on action, groups that focus on actual, 'here-and-now' issues that the team itself chooses, enable the CBTC approach to remain flexible to that specific teams agenda and a team-based solution-focused process can be obtained.

Before the team coaching starts, and taking into account Clutterbuck's (2007) points, there is need for preparations to inform about the process, build trust and a clear picture of what the team coaching will involve. Also clear guidelines are needed for how the documentation (with the team member's suggestions and results of their work) will be handled. If coaching is carried out at a time point with high work demands, the team coaching can be viewed as another demand, competing for time and attention. Figure 1 (overleaf) provides a summary of how the PRACTICE framework can be applied in CBTC programme with Whole team and Small team settings.

The difference between the suggested adapted PRACTICE CBTC model and the individual framework is that a team setting provides the possibility to focus on mutual issues the team may face together. To not lose the individual team members opinions due to the size of the team, it might be helpful using focus and action groups for some of the steps described in PRACTICE, creating a coaching process in both the smaller and whole team. The 'smaller' team setting will make it possible for everyone to speak their mind, discuss obstacles, for example, why some issues have been hard to address or solve, and eventually come up with different solutions for change discussing them together in a whole team setting. When you work with individuals, the work is generally focused on that particular person's process, and hopefully the structure in the suggested CBTC framework can provide the necessary means to both address the team and individual need for dialog around the issues and chosen solutions that can lead the team to mutual goal attainment.

Pilot study

To investigate if the adapted PRACTICE framework can be used as a CBTC model and its usefulness, a pilot study will be carried out with focus on face-to-face teams working in a technology based global company. The teams are well established having worked together for a long period of time. Some of the teams may consist of team members that are based in other countries or are working in other countries as well. Most of the team members are civil engineers working with innovation, developing new technology products and are working within one or many projects and with other teams for longer or shorter periods.

The proposed pilot study aims to answer the question if cognitive behavioural team coaching can increase well-being and lessen strain. Team coaching will be carried out at three separate meetings lasting two hours each, for a period of three to four months, following the schedule presented in Figure 1. In total 40 participants will join the study from approximately 10 teams. The leader will participate in the team coaching and problems identified as connected to management or organisational issues and outside of the teams control are transferred to the leader, to be handled separately. Data will be collected with questionnaires from 20 per cent of the team members concerning, personal well-being and strain, for example, Scales of Psychological Well-Being (Ryff, 1989), HSE Stress Indicator Tool (HSE, 2004), Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995) and the

Figure 1: CBTC Programme for a Whole team setting and a Small team setting.

Whole team setting	Small team setting
Coaching session 1	
1. Presenting issues The team idea showers, identifies issues, collectively votes, and decides what areas that should be prioritised. Focus groups are created based on the vote. The individual team member choses what problem or focus group they want to join. ● What's the issue or concern or topic you wish to discuss? ● What would you like to change? ● Any exceptions when it is not a problem, issue or concern? ● How will we know if the situation has improved? ● On a scale of 0 to 10 where '0' is nowhere and '10' is resolved, how near are you now today, to resolving the problem or issue? ● Any distortions or can the problem or issue be viewed differently? ● Can you imagine waking up tomorrow morning and this problem (or issue or concern) no longer existed, what would you notice that was different?	
	2. Realistic goals are set and decisions about what they want to achieve through developing SMART goals. ● What do you want to achieve? ● Let's develop specific SMART goals (e.g. SMART goals)
Coaching session 2	
	3-4. Alternative solutions generated and consideration of consequences The smaller group generate ideas for different solutions, consider different consequences and rate the usefulness of each solution. ● What are your options? Let's note them down. ● What could happen? ● How useful is each possible solution? ● Let's use a rating 'usefulness' scale for each solution where '0' is not useful at all, and '10' is extremely useful.

Whole team setting	Small team setting
	5. Target most feasible solution(s) The fifth step includes working with and target the most practical solution. ● Now we have considered the possible solutions, what is the most feasible or practical solution(s)?
6. Implementation of chosen solution(s) (a) The smaller groups come together and report their findings and discuss it with the whole team. (b) Action groups are created based on the previous focus groups. Any team member can once again chose what group to work in. (c) The sixth step involves implementations of the chosen solutions and the action groups may try them out in the work environment, collecting their own data from any success or obstacles they might have encountered. ● Let's implement the chosen solution by breaking it down into manageable steps. ● Now go and do it!	
Coaching session 3	
7. Evaluation At the third and last coaching session, each action group reports or evaluates their findings to the whole team and discusses what can be learned from the team work. Decisions are made how to move forward and how to use the material in their future teamwork. ● How successful was it? ● Rating 'success' scale 0 to 10. ● What can be learnt? ● Can we finish coaching now or do you want to address or discuss another issue or concern?	

Personal Well-being Index (International Well-being Group, 2006; Lau, Cummins & McPherson, 2005). Stressors connected to the work environment are measured from 100 per cent of the team members with the Stress Indicator Tool (HSE, 2004). The reason that only 20 per cent of the team is measured concerning individual well-being and strain are that these data are more sensitive and participation in the study is voluntary to the individual, whilst the team coaching is a team choice. The data is collected pre-coaching, right after it ends and after three months at a follow-up. The individual team members will also be interviewed after three months by an independent rater, to follow-up on any change in well-being and stress.

Implications

The study will aim to provide insights as to whether CBTC can be a useful method to increase well-being in teams in an organisational context. It might also provide information about whether CBTC can help to solve different issues over time and furthermore what kind of areas a modern team of today views as important and needs attention.

Conclusion

Why develop a CBTC model for team coaching? In an organisational context coaching a team to increase well-being instead of separate individuals seems more effective. One of the few studies relating to team coaching showed that team coaching had an indirect effect on the behavioural team process through team goal commitment (Rousseau et al., 2013). Due to the lack of research on existing models on how to work with teams concerning well-being and strain it feels important to develop and investigate the effectiveness of a model that is based on previous well researched CBC practice and theories. Building a solution-focused CBTC model where a coach or a coaching psychologist can offer a structured method to create a problem solving process within the team (focusing on goal attainment facilitated by understanding the consensual relationships that exist between thoughts, feelings, behaviour, and the environment), might prove to be helpful for the team's well-being. The seven differentiated steps, might also provide a clear plan forward rather than getting stuck on a matter solely focusing on the problem side of the issue.

Although there is a lack of research concerning teams, well-being and stress, we do know that well-being is a key to psychological and physical health and that stress is becoming a problem at work that can affect the individual team member's well-being. It can be argued that the team, as we know it, now operates in a different environment where teamwork-at-a-distance is becoming more usual and teams are organised in new ways. So even if the team 'on paper' is based at one location, tools, relationships and meetings can be partly virtual.

Given these broader contextual changes to the team environment, CBTC could provide a structure for the team to clarify their roles and goals, examine support structures, and consider issues or concerns that affect the team at that moment in time. Building a coaching culture for team coaching could also prove to be valuable for the team even after the team coaching has ended. A CBTC approach might also provide a forum for encouraging a problem solving approach for issues relating to that specific team's situation, thus moving focus from the external demands to their own team environment and well-being.

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Appendix O

Hultgren, U., Palmer, S., & O'Riordan, S. (2016a). Developing and evaluating a virtual coaching programme: A pilot study. The Coaching Psychologist, 9(2), 100-110.

Developing and evaluating a virtual coaching programme: A pilot study

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This paper describes the process of adapting a face to face cognitive behavioural coaching (CBC) model, PRACTICE (Palmer, 2011), into a virtual self-coaching programme and presents the results from a pilot study concerning the usability of the programme. There are a lack of studies regarding effects of assisted and non-assisted cognitive behavioural virtual coaching programmes in the workplace. With the increasing public health focus on wellbeing and prevention of mental illness, coaching psychology (rather than psychotherapy) could play an important role. Virtual coaching programmes accessible on company intranets may take a preventive role and provide cost-effective ways to reach larger work populations. They may lower the threshold for seeking further assistance with issues at work that potentially, if not detected and handled, could lead to decreased wellbeing. The intervention group consisted of nine participants and the results suggested that the software/programme design/method were user-friendly. The results further indicated that post-test scores were higher than pre-test scores concerning wellbeing and goal attainment after the six-week self-coaching programme. The pilot study was however limited by a small sample size and the results should therefore be interpreted merely as indications. The primary conclusions drawn from this study were that the results suggested that the programme's self-coaching and goal attainment process were designed in a methodical and user friendly way.

Keywords: *Virtual coaching, solution focused coaching, cognitive behavioural coaching, coaching psychology.*

Introduction

THERE ARE some obvious advantages with psychological virtual tools: they are accessible from the home or office with no travel time, self-administrative, built with or without artificial intelligence (AI), easy to access at any time and can serve multiple users. In addition, such tools could possibly lower the barriers for people seeking assistance as availability, acceptability and accessibility can be major contributors for delaying or not seeking assistance (APA, 2007). However, there is a lack of research concerning virtual coaching solutions and their usefulness.

Virtual methods have changed over the years, with new elements added due to advancements in technology. One definition by Boyce and Hernez-Broome (2010) defines e-coaching as a technology-mediated relationship between coach and coachee, collaborating with the purpose of assisting coachee growth. Another definition by Clutterbuck (2010) refers to 'a developmental partnership, in which all or most of the learning dialogue takes place using email, either as the sole medium or supplemented by other media' (Clutterbuck, 2010, p.4). It now seems appropriate to move beyond earlier definitions to the term virtual coaching since the word 'virtual' has become the dominant term for describing relationships or methods used online. Virtual coaching itself needs to be defined further. There are a plethora of virtual coaching approaches involving phone, AI, virtual reality and live chat. Suggested definitions for these terms are:

1. **Virtual coaching:** A human-based coaching relationship that takes place solely via virtual/Internet communication technologies (telephone, email, live chat, and video).
2. **Virtual self-coaching:** A computerised self-administrated software solution without a coach present.

3. **Virtual reality coaching:** A three-dimensional environment virtual software program, involving human coaching through avatars.
4. **AI coaching:** Artificial intelligent software (a software programmed robot) involving an AI coach.
5. **Mixed virtual coaching:** A human-based coaching relationship that takes place face-to-face and via virtual/Internet communication technologies (telephone, email, live chat, and video).

Virtual coaching

Historically, the first demonstration of virtual/internet counselling emerged in October 1972 during the ICCC (International Conference on Computer Communication), where a simulated psychotherapy session was held between linked computers in Stanford and UCLA. When the first national online services (The Source and CompuServe) allowed nationwide internet communication for personal computer users, beginning in 1979, it was not long until formally organised support groups became popular. The origin of virtual psychological methods, like counselling, was educational with accessible information to the public about different areas of psychology. As technology advanced, it opened up the possibility to also communicate through the internet.

Spence and Grant (2013) summarised peer-reviewed academic literature from the coaching field and concluded in their findings 'that coaching can positively impact human functioning and wellbeing across several different contexts' (Spence & Grant, 2013, p.1009). Coaching has been found to increase goal commitment and wellbeing as a sequential to environmental mastery (Spence & Grant 2007); cognitive hardiness and mental health (Green, Grant & Rysaardt, 2007). Coaching can also be helpful in increasing goal striving, wellbeing and hope, battling subclinical symptoms; reducing stress and depression; tackling perfectionism and self-handicapping (e.g. Grant, 2001, 2003, 2008; Grant, Curtayne & Burton, 2009; Green, Oades & Grant, 2006; Gyllensten et al., 2010; Grbcic & Palmer, 2006; Kearns, Forbes & Gardiner, 2007; Kearns, Gardiner & Marshall, 2008; Libri & Kemp, 2006). Research also suggests that it is important 'to build a structure that is task-focused, with clear and achievable goals, as this leads to successful outcomes more so than just focusing on developing a close relationship or bonds' (Page & De Haan, 2014, p.4). Furthermore, De Haan (2014) suggests that coaching that is task- or goal-focused gives the coaching conversation a clear direction that is action-oriented.

A few unpublished dissertations have been found on virtual coaching; amongst them a study by Charbonneau (2002), investigating executives' experiences and media selection. Although limited by a small sample size, this study highlighted that 'coach-coachee-media fit' can be vital to the success of the intervention. An experimental control study also examined the impact of an online coaching programme on goal attainment, wellbeing and level of hope (Poepsel, 2011). The results indicated that the virtual coaching programme increased participants' subjective goal attainment and wellbeing. Developing goals is an important aspect of stress, time and life management (Palmer & Cooper, 2013). Research suggests that subjective well-being positively correlates to goal attainment (Brunstein, 1993; Elliot et al., 1997; Sheldon & Kasser, 1998; Sheldon & Elliot, 1999; Sheldon et al., 2002; Sheldon, 2008).

In the PRACTICE model the original SMART goals framework (Doran, 1981) was used as a way of structuring the goal attainment process. Research (Locke, 1996; Locke & Latham, 1990) has also suggested that developing goals helps a person enhance motivation and remain focused on issues that need addressing. There are currently many self-assisted virtual programmes in the area of health and wellbeing as well as cognitive behavioural therapy. For example, 'Beating-the-blues' developed by the Institute of Psychiatry at King's College

in London, which is recommended by the National Health Service (Proudfoot et. al., 2004), and has been found to have effective outcomes. However, there still seems to be a lack of research in how the programme was created apart from the well-founded cognitive behavioural theory from which it was derived.

Given the shortage of research concerning the efficacy of solely virtual methods, the area of virtual learning may provide useful information. A meta-analysis conducted by the US Department of Education (2010) indicates that of 50 study effects, students in virtual conditions performed modestly better on average than those learning the same material through traditional face-to-face instruction. Côté (2005) used psychobiological measurements which suggest Virtual Reality Exposure leads to significant clinical and statistical change for people suffering from arachnophobia. This suggests that the information processing of threatening stimuli was altered after solely virtual treatment. Simply, a real spider was not needed to affect treatment outcome.

PRACTICE Framework

The PRACTICE framework was developed by Palmer (2011) and consists of seven steps. The framework is built on a solution-focused cognitive behavioural coaching model. The 'P' in the model can represent a number of different items that the problem solver may wish to tackle; for example, 'Problem identification', 'Performance-related issue' or 'Preferred outcome'. The 'R' represents 'Realistic, relevant goals' and the 'A' represents 'Alternative solution(s) generated'. 'C' stands for 'Consideration of the consequences' and 'T' is 'Target the most feasible solution(s)', as not all immediate solutions are easy to implement. The 'I' and the 'C' are one step combined and represent 'Implementation of the Chosen solution(s)'. Finally, 'E' is for 'Evaluation', with this stage encouraging reflection on how successful the problem solving process has been, followed by a 'success' scale 1 to 10 where 1 is not successful and 10 is very successful.

Aim of the study

A preliminary study was conducted as part of an ethically approved randomised controlled research programme. The main study, to be carried out in a global technology company during 2016–2017, will explore whether different modalities (face-to-face, telephone and virtual self-assisted CBC) can increase wellbeing in a psychosocial work environment context. The preliminary study was conducted in order to evaluate feasibility of the adjusted method of delivery from face-to-face to a virtual form. Another aim was to explore if any adjustments had to be made (in for example: design, software and method) before the main study was launched.

Design

The participants used online questionnaires to rate wellbeing and goal attainment at the start and at the end of the six-week coaching program (see Figure 1). When the virtual coaching was finished an email was sent with an online feedback questionnaire.

Figure 1: Research process and design

Participants

The study group consisted of 10 participants recruited from managerial and administrative employees/staff within the researcher's professional network of Health & Safety and Health Care organisations. 56 per cent were male and 44 per cent female, with a median age of 48 years.

Questionnaires

The Personal Wellbeing Index (PWI) contains seven items of satisfaction, each one corresponding to a quality of life domain: standard of living, health, achieving in life, relationships, safety, community-connectedness, future security (International Wellbeing Group, 2013). The normative range for Western countries mean is 70–80 points. A simple goal rating scale was also used, marked with Goal 1–5 and combined with two separate rating scales, where '1'was not successful and '10' very successful, for each of the goals. One scale was to be used before the coaching started and one after. The number of goals each participant worked with was also measured (see Table 6). The feedback questionnaire consisted of four questions: 1) How many times did you use PRACTICE? 2) How much time did you set aside, approximately, to work with the self-coaching tool each time you used it? 3) How did you experience the self-coaching tool? 4) Do you have any suggestions for improvements on design, the questions and construction etc.? 5) Additional comments.

Procedure

To create a logic framework with a structured action oriented coaching process otherwise given by a live coach, five different segments were built into the program (see Figure 2).

1. The introduction focused mainly on the PRACTICE and SMART (Doran, 1981) models, but also informed about well-being, stress and its relationship to issues at work. Other areas mentioned were the importance of dedicating time to working with and completing the assignments and minimising disturbance from the environment. Information was provided that the programme was free to use as many times as needed and a time estimate was given of 20 minutes to complete the programme.
2. The second section of the programme describes a set of work life examples of topics as well as the process of working through the seven-step coaching session together with the goal setting and rating process.
3. In the information section data security and privacy was explained and it was recommended to save or print out a copy of each self-coaching session to keep as a personal record. Support information was also provided.
4. The coaching section consisted of the seven different modules following the structure of the PRACTICE framework. On each page information of that specific stage of the framework was set out with questions to help participant completion. Some stages of the self-coaching process also involved using a 'success rating' ranging from 1 to 10 to help create awareness of how close the coachee was to reaching that particular goal.
5. An embedded link to the goal rating scale was provided in the last section on evaluation to encourage participant reflection on how successful the problem solving process had been. When the participant finished the self-coaching for one particular area he/she was asked if they

Figure 2: The PRACTICE program segments.

wanted to finish the coaching session, continue with another area or return at a later time to resume the self-coaching.

Results

Nine of the ten participants responded to the questionnaires at the start of the six-week coaching programme. The remaining participant withdrew from the study early on. The answering rate varied across the time points, time point 1 (Tp1) *N*=9, time point two (Tp2) *N*=7. The participants used the self-coaching programme on average three times across the duration of the study, worked with a median of three goals and spent approximately 24 minutes on each self-coaching session (see Tables 1, 2 and 6).

Table 1: The number of times the participants used the self-coaching programme

1. How many times did you use PRACTICE?	Response	Response %
1	2	29 %
2	1	14 %
3	3	43 %
4	0	-
5	1	14 %
Total:	7	100%

Table 2: The amount of time used on each self-coaching session

2. The amount of time used for each coaching session	Response	Response %
< 10 minutes	1	14%
20 minutes	2	29%
30 minutes	4	57%
40 minutes	0	-
50 minutes or more	0	-
Total:	7	100%

Results from the feedback questionnaire (text answers/responses, question 3, 4 & 5), showed the participants experience with the self-coaching tool, suggestions for improvements or additional comments, see Tables 3–5.

Table 3: Experiences using the coaching tool

3. How did you experience the self-coaching tool?	
Response	**Free text answers/ respondent**
1	'A hands on, easy to use tool. Working with it feels like time well spent'
2	'Useful'
3	'Good I set aside time for self-development'
4	'It was easy to work with, good way to structure your goals and the different steps'
5	'Attractive design and fun and easy to use'
6	'Simple'
Total 6 (86%)	

Table 4: Suggestions for improvements

4. Do you have any suggestions for improvements on design, the questions and construction, etc?	
Response	**Free text answers/ respondent**
1	'An easier way to reach the examples when working with the self-coaching, not having to go to the home page'
2	'A link between self-coaching and current example'
Total: 2 (29%)	

Table 5: Additional comments

Response	Free text answers/respondent
1	'It is very important to have well defined, realistic goals'
1	'I will continue to use it in the future'
Total: 2 (29%)	

Table 6: The number of goals that each participant worked with within the programme

Goals worked with within the programme	Response	Response %
1	0	-
2	4	57%
3	1	14 %
4	0	-
5	2	29%
Total:	7	100%

The Personal Wellbeing Index (PWI) was used pre- and post-coaching with recorded internal data loss (Tp1 *N*=1, Tp2: *N*=2). Normality tests showed that the PWI data at Tp1 was not normally distributed (SD=25.77) and Trimmed M was used on the basis that the data showed a long-tailed distribution. As shown in Figure 3 the descriptive statistics suggest there is a difference in PWI scores pre- and post- self-coaching (Tp1 (*N*=8); Trimmed M 5%=52, SD=25.77; Tp2 (*N*=7); Trimmed M 5%=66, SD=3.65.

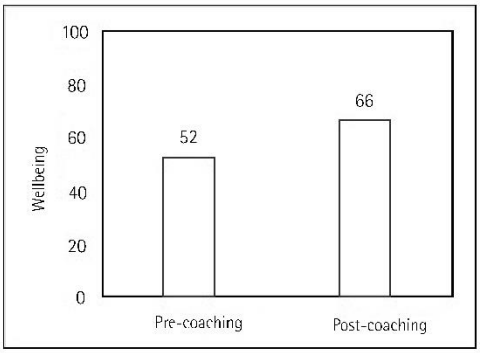

Figure 3: Wellbeing scores, pre- and post-coaching

The results from the Goal Rating Scale (see Figure 4) were analysed with Wilcoxon Signed-Rank Test and indicated that post test scores (*N*=7, M=6.1) were higher than pre-test scores (*N*=7, M=3.7), Z=2.366, p<.05.

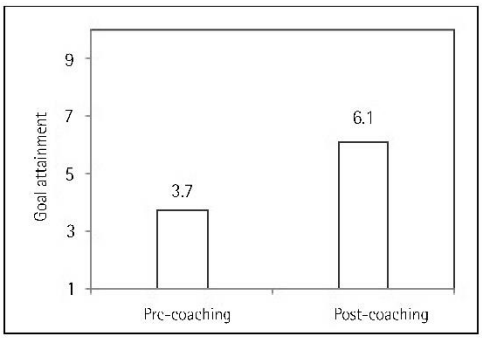

Figure 4: Goal attainment scores, pre- and post-coaching

Discussion

The process of transforming a face-to-face method into a virtual self-coaching programme raised a number of interesting questions about design, software, security, usability and the PRACTICE framework. One of the most important areas constructing the programme was the creation of a motivating virtual environment where an actual coaching process could take place without a live coach being present. The PRACTICE model with its clear stepped structure was possible to transform into a virtual self-coaching tool, but the study also highlights the case for further exploration on how the virtual form might affect the coaching relationship and factors such as interaction, communication, learning, memory, attention and motivation in coaching. Charbonneau (2002) underlined the importance of a media fit: in other words, all coachees might not be interested in solving issues by themselves and would rather spend time with a live coach, while some persons might prefer virtual solutions or a mixed approach. Such areas will be examined in the forthcoming main research study.

With the generally increased focus on wellbeing, prevention and early detection of stress and mental illness, virtual coaching

could potentially serve as a first line of defence and lower barriers to seeking assistance with issues relating to, for example, early signs of work related stress. In a corporate virtual environment, access to an intranet and virtual tools dealing with psychological issues within the work environment could provide easier access, mobility and more cost effective solutions. This may have the possible benefit of reducing symptoms in sub-clinical populations. A virtual coaching programme could also inform staff about how to access further assistance when needed from HR, managers, coaches and/or healthcare professionals.

This pilot study set out to explore if the adapted virtual programme was user-friendly. Given the small sample, the results regarding goal attainment or well-being as a result of the self-coaching was considered secondary, but could show if the programme's goal attainment process was working as expected. The results from the feedback questionnaire indicated that the software itself was user friendly and therefore possible to use in the main study after some minor adjustments of links between sections within the programme. The self-coaching programme in this study was aimed at groups not experiencing severe symptoms of anxiety or depression, but who could encounter psychological strain manifesting as issues with; concentration, attention, memory and fatigue. In the main study a screening questionnaire; Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995), will be used with cut-off scores set for participation and transferal options to healthcare or primary care professionals.

The results further indicated that post-test scores were higher than pre-test scores concerning both wellbeing and goal attainment after the six-week self-coaching programme. However, it is notable that in the PWI post results, 66 points, are still below the normative range for the Western countries, M=70–80 points (International Well-being Group, 2013). Even though the sample size is small, the results could imply a positive correlation between goal attainment and wellbeing found in other studies (Brunstein, 1993; Elliot et al., 1997; Sheldon & Kasser, 1998; Sheldon & Elliot, 1999; Sheldon et al., 2002; Sheldon, 2008).

The study has a number of limitations. Firstly, the small sample size, which can lead to greater statistical deviations and possible risks for bias toward false positives. The estimated six-week programme was prolonged for parts of the group with current high work demands around a festive vacation period time, with some participants starting the self-coaching programme later than planned. This could mean that the results between Tp1 and Tp2 have been affected by other factors rather than the actual coaching.

Important learnings from the pilot study include:

- Whilst a follow-up questionnaire was used, additional systems for continuous follow up of such data could be implemented to reduce coachee memory recall issues.
- The period of planned time that elapses between the start and the end of the coaching programme has to be more rigidly built into the main study's research design to limit the possibility of other effects influencing the results.
- In the future main study, the follow up questionnaire delivered three-month post-coaching, will include additional questions about possible other effects impacting the participants wellbeing (such as personal or work-related occurrences like a new job or organisational changes) measured through an independent evaluation process.
- Some participants had to be reminded up to four times at Tp 2. While other participants worked through the coaching programme and quickly responded to the questionnaires. When using a software solution for coaching, the participant's self-motivation will most likely be an important key factor. The timing of the intervention could be another area to consider, so that the coaching intervention in itself is not adding more pressure, for example, close to a project deadline.

- The instructional elements written in the programme have to be carefully considered, especially in the absence of a live coach with the natural role of managing the structure and the process of the coaching journey.
- Computer function and software requires attention when using virtual tools. Fully self-administrative virtual coaching needs to clearly inform and educate the coachee beforehand about the software, the purpose of the coaching programme and describe the method. The programme in itself should provide self-instructional passages, answer questions about security and how to contact professionals for further assistance if needed.
- Summary reports of written information from the coachee should also be offered as printouts when finishing the programme.

Even though there seems to be a number of advantages to virtual coaching, assisted or not assisted, the virtual development in the field of psychology at large also raises a number of concerns. The main areas of discussion seem to have focused on whether virtual methods are efficient, valid and effective. Ethical issues regarding virtual services are also debated when, for example, a coaching psychologist is practising in England while the coachee potentially could live in another country subject to different regulations.

Suggestions for future research include exploring which technological and psychological aspects or factors are beneficial to the outcome. Researchers may also wish to study how multi-disciplinary co-operation could be created to ensure that future psychological virtual tools consider all necessary aspects to ensure integrity and the best efficiency and outcomes.

Conclusions

The main objective was to explore the usefulness of the adapted PRACTICE framework originally used as a face-to-face method to a virtual self-coaching programme. The results suggested that the software and method of delivery were user friendly and therefore feasible to use in the main study.

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