The cognitive-behavioural approach: A closer look at some of its latest developments

Vasiliki Christodoulou

This portfolio is submitted in partial fulfilment of the requirements of the Professional Doctorate in Counselling Psychology (DPsych)

City University, London

Psychology Department

October 2009

CITY UNIVERSITY
LONDON

City, University of London
Northampton Square
London
EC1V 0HB
United Kingdom

T +44 (0)20 7040 5060

THE FOLLOWING PARTS OF THIS THESIS ARE TO BE REDACTED FOR DATA PROTECTION/CONFIDENTIALITY REASONS:

p. 181:	Telephone numbers and email addresses.
p. 182:	Email address.
p. 183:	Telephone numbers and email addresses.
p. 184:	Telephone numbers and email addresses.
p. 186:	Telephone numbers and email addresses.
p. 189:	Email addresses.
pp. 235-262:	Section B: CBT case study.

THE FOLLOWING PARTS OF THIS THESIS ARE TO BE REDACTED FOR COPYRIGHT REASONS:

p. 204	General Health Questionnaire - 12.
p. 206	Behavioural activation for depression scale.
p. 207	ATQ B scale.
p. 208	White Bear Suppression Inventory (WBSI) scale.
p. 209	Freiburg Mindfulness Inventory (FMI) scale.

I dedicate this thesis to my father

Table of Contents

List of Figures

SECTION A

SECTION B

List of Tables

SECTION A

ACKNOWLEDGEMENTS

Firstly, I would like to thank Dr. Paul Flaxman for his invaluable guidance, encouragement, and unremitting optimism whilst completing the research element of this portfolio. I would also like to acknowledge the contribution of the clinical supervisors that I worked alongside these past three years; your collective support and expertise taught me how to work towards becoming a more reflective and skilled practitioner.

I am deeply grateful to my parents whose love and endless support has been a pillar during my education. Equally, I would like to thank my sisters and nephews for always bringing a smile in my life.

I would especially like to acknowledge my partner, Andreas, who has been a source of resilience these past three years. He has been a listener, a friend, and a practical aide during this time.

I would also like to express gratitude to my friends who managed to convince me to have fun even during demanding periods. Also, I am indebted to my peers on this course for always being willing to hear my questions and proof-read my work; you have become close friends.

Finally, I would like to thank all the participants that attended my ACT workshops as well as the numerous psychotherapy clients that trusted me with their challenges over these years. You have taught me to see hope in adversity and to believe that change and growth is always possible.

Vasiliki Christodoulou

PREFACE

Questioning and discovery: Working on a CBT continuum

It is curious how complex and overpopulated the world of psychotherapy seems and how elusive often is the journey of theoretical orientation for the new practitioner. I often wondered how practitioners found their way, developed beliefs in models, and drew alliances in the midst of such variety. Yet, it is on variety that I chose to reflect in this portfolio since it is through close contact with a range of perspectives that I have come to develop my professional identity. Specifically, the contents of this portfolio reflect a process of questioning and learning in the cognitive behavioural therapy framework. Cognitive Behavioural Therapy (CBT) is one of the leading psychotherapy models, is heavily publicised and emphasized in psychotherapy training programs. Indeed, the cognitive-behavioural framework has evidenced significant steps in various directions in recent years. This is a time of great debate, where practitioners seek to strengthen their alliances and validate their positions. From the widespread influence of mindfulness and acceptance approaches in prevention and practice to the introduction of self-help CBT interventions, a counselling psychologist interested in CBT has a great deal to consider. This portfolio seeks to take a closer look at some of these developments, explore their contribution, and reflect on certain emergent challenges. Although this thesis does not provide an exhaustive consideration of CBT and its variants, it emphasizes the importance of maintaining an inquisitive stance whilst considering developments in psychotherapy. In this introduction I seek to place this portfolio in context, introduce the relevance of cognitive-behavioural approaches with reference to the profession of counselling psychology, and outline the contents of this thesis.

The cognitive behavioural approach can be conceptualised as a pluralistic framework with great variability in its underlying theory, philosophy, and collection of interventions. In general, the term cognitive behavioural therapy refers to a collection of time-limited therapeutic models that emphasize the importance of cognitive and/or behavioural processes for therapeutic change (Grazebrook & Garland, 2005). Notably, different CBT models might place greater or smaller emphasis on behavioural or cognitive elements in terms of their underlying model and could introduce different therapeutic interventions (Grazebrook & Garland, 2005). Furthermore, cognitive behavioural approaches can be conceptualised on a

continuum, ranging from formulation-driven one-to-one psychotherapy, to psycho-educational group interventions, to independent implementation of structured self-help material (Grazebrook & Garland, 2005). It follows that irrespective of the level of intervention, a practitioner can conceptualise a client case within different CBT frameworks. For instance, a widely practiced CBT variant is based on Beck, Rush, Shaw and Emery's (1979) model which emphasizes the importance of cognitive interventions such as teaching clients how to challenge the content of dysfunctional cognitions to better-manage emotional reactions.

Unquestionably over the last 25 years CBT interventions (e.g., Beck et al., 1979) have gained momentum by illustrating their efficacy in several outcome trials and for a variety of client difficulties (Hollon & Beck, 1994). Empirical research has not only supported this model's efficacy but has also provided evidence that therapeutic change is maintained over time (Hollon, 2003). In addition, the model has demonstrated its value as a preventative intervention in multiple projects (Hollon, DeRubeis, & Seligman, 1992). According to Barber and DeRubeis (1989), CBT has revolutionised the field of psychotherapy by placing emphasis on empowering clients and providing them with the means of managing their emotional reactions and behaviour to enhance their lives. In view of this remarkable empirical support it is not surprising that the National Institute for Clinical Excellence recommends CBT as the treatment of choice for several psychological disorders and specifically for depression and anxiety (NICE, 2004, 2007). The model's authority is further reflected by the introduction of an Improving Access to Psychological Therapies Service (IAPT) in the UK which heavily promotes CBT as an evidence-based therapy (Turpin, Richards, Hope, & Duffy, 2008). This framework assumes a stepped care model where individuals are being offered a selection of low impact (e.g., guided self help) or high impact interventions (e.g., one-to-one protocol led CBT; Turpin et al., 2008). IAPT also promises wider access to psychotherapy services and has a focus on prevention and well being in communities (DH, 2008).

These developments are of essence to counselling psychologists who work within a CBT framework. Undeniably initiatives that promise widespread application of mental health services are welcomed by practitioners. However, beyond the enthusiasm raised by this project there have also been significant criticisms of the fact that CBT is overrepresented in the new governmental initiatives. For instance in an article in the Counselling Psychology

Review, Merrett and Easton (2008) observe that CBT is being introduced as a mechanistic set of techniques and they argue that there is a fundamental problem with promoting it as a 'treatment' rather than as means of encouraging client growth. They argue that the current status of CBT is overly reliant on diagnosis and they maintain that therapist creativity might be restricted in this framework. Indeed, CBT's reliance on the medical model has been criticised and there have been calls for added emphasis on clients' social needs and functional outcomes (Kinderman, 2009). For instance, Merrett and Easton (2008) discuss the value of practicing within the cognitive behavioural framework with a greater consideration of its underlying theory and philosophy rather than merely concentrating on technique and intervention. These issues are paramount from a counselling psychologist's perspective given the profession's philosophical emphasis on humanistic principles such as client self-determination and the development of an authentic therapeutic relationship (e.g., Deurzen-Smith, 1990). Palmer and Woolfe (2000) suggested that these values can be successfully integrated whilst working with techniques from various backgrounds including CBT. These considerations are seldom discussed in training programs that tend to concentrate on the development of specific clinical skills however. As a response, this portfolio aims to highlight the importance of attending to theory and philosophy both in research and clinical practice.

As mentioned above, a central aim of this portfolio is to focus on the cognitive behavioural framework whilst recognising some of its recent developments. For instance, CBT has recently promoted the development, research, and application of self-help programs that can be delivered with minimal or no therapist input either via a computer or a written manual. Another development considered in this portfolio involves the emergence of so called 'third wave' cognitive-behavioural models such as Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999). 'Third wave' models emphasize the importance of changing clients' relationship with their thoughts –rather than concentrating on altering the content of cognitions- through utilisation of acceptance and mindfulness processes (Hayes, 2004). 'Third wave' approaches argue against a reliance on diagnosis and emphasize the value of maintaining client growth as the goal of therapy (Hayes, et al., 1999).

Arguably, the availability of different approaches within the CBT framework is useful as one can select the model and type of intervention that is most suitable for the individual client. However, variability also raises questions, confusion, and theoretical discussions. For

example, CBT self-help programs have been received with scepticism (Andersson & Cuijpers, 2008). In addition, the emergence of 'third wave' CBT approaches, such as Acceptance and Commitment therapy, has raised a significant debate in the CBT community (Leahy, 2008). Representatives of mainstream CBT have argued that ACT has nothing new or different to offer (e.g., Leahy, 2008; Hoffman & Asmundson, 2008) and that even if it does it is not more efficacious than previously-established CBT models (e.g., Powers, Zum, Vorde Sive Vording, & Emmelkamp, 2009). To make matters more complex therapists often integrate techniques and interventions from different CBT frameworks without examining whether the underlying theories are compatible resulting in what David (2004, p.449) named "a cocktail school of cognitive–behavioral therapy." Undeniably a critical stance is essential whilst approaching various initiatives in psychotherapy as is calm reflection and exploration of published research. This portfolio endeavoured to learn from different perspectives by answering some of the outstanding questions that have emerged within the cognitive behavioural framework. It also sought to critically explore the evidence-base for the aforementioned cognitive-behavioural developments. Counselling psychologists are called to consider whether new models and intervention types are effective and whether they have something different to offer. Indeed, there is value in exploring the effectiveness of different approaches if variety and choice is to be reflected in treatment packages offered by mental health services.

In detail, the first section of this portfolio (Section A) presents a research project that examined the effectiveness of ACT as a brief preventative intervention. This research project questioned the effectiveness of acceptance and mindfulness processes as means of therapeutic change. This section further discusses the rationale for delivering brief preventative interventions for promoting well-being. Finally, this section reflects on the challenges and benefits of delivering a brief ACT intervention and explores ways of improving prevention schemes in the future. The second section of this portfolio (Section B) illustrates a clinical case study conducted within a CBT framework considering the advantages and limitations of this clinical work. This chapter further sought to question how the same client case might have been approached from an Acceptance and Commitment Therapy theoretical perspective and explored the potential implications of this re-conceptualisation. Secondary aims involved discussing the connotations of attending to theory, philosophy and process information in therapeutic practice. The final section (Section C) consists of a critical literature review that examines the effectiveness of newly introduced self-help interventions for depression. Given

that self-help packages are currently implemented in the UK's National Health Service, counselling psychologists are asked to consider how effective they are, under what conditions, and how much therapist's input is required for them to be efficacious. Indeed, these programs invite counselling psychologists' to revisit their understanding of psychotherapy and consider what their role might be in a changing system of psychotherapy delivery. Section C approaches these questions via an evaluation of published research.

Across sections, this portfolio seeks to explore how we can best utilise the newest developments in CBT to inform best therapeutic practice. This portfolio intends to show that by examining new initiatives one is encouraged to revisit and better-understand older models and that by keeping an open stance one may improve and update clinical practice. Indeed, Strawbridge and Woolfe (2003) emphasized counselling psychology's recognition and appreciation of different traditions in psychology and argued the importance of promoting openness and not closure and dogmatism whilst considering therapeutic approaches. Unquestionably, different clients may benefit with different interventions and it is important to consider all available options. This portfolio involves continuous examination of published literature, engagement with applied research, and application of evidence-based approaches in clinical practice. My experience in learning CBT was one of delight while I encountered theoretical debates and continuous changes and developments. This journey has taught me to remain inquisitive and curious in my clinical practice; qualities that are greatly celebrated in the CBT framework. The overarching aim of this portfolio was to trigger a process of questioning leading to an evaluation of what a useful therapeutic intervention involves and what the role of CBT might be in this spectrum.

References

Andersson, G. & Cuijpers, P. (2008). Pros and cons of online cognitive-behavioural therapy. *The British Journal of Psychiatry, 193*, 270-271.

Barber, J. P., & DeRubeis, R. J. (1989). On second thought: Where the action is in cognitive therapy for depression. *Cognitive Therapy and Research, 13*, 441–457.

David, D. (2004). Special issue on the cognitive revolution in Clinical Psychology: Beyond the behavioral approach-conclusions: Toward an evidence-based psychology and psychotherapy. *Journal of Clinical Psychology, 60*(4), 447-451.

Department of Health. (2008*). Commissioning IAPT for the whole community: Improving Access to Psychological Therapies.* (Reference: 10547). Retrieved on September, 2, 2009 from http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_090054.pdf.

Deurzen-Smith, E. van (1990). 'Philosophical underpinnings of counselling psychology', *Counselling Psychology Review, 5*(3), 8-12.

Grazebrook, K., Garland, A. & the Board of BABCP (2005). *What are cognitive and/or behavioural psychotherapies?* Retrieved on September, 2, 2009 from www.babcp.org.uk.

Hayes, S. C. (2004). Acceptance and Commitment Therapy and the new behavior therapies: Mindfulness, acceptance and relationship. In S. C. Hayes, V. M. Follette, & M. Linehan (Eds.), *Mindfulness and acceptance: Expanding the cognitive behavioral tradition* (pp. 1-29). New York: Guilford.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behaviour change.* New York: The Guilford Press.

Hoffman, S. G., & Asmundson, G. (2008). Acceptance and mindfulness-based therapy: New wave or old hat? *Clinical Psychology Review, 28*, 1-16.

Hollon, S. D. (2003). Does cognitive therapy have an enduring effect? *Cognitive Therapy and Research, 27*(1), 71-75.

Hollon, S. D., DeRubeis, R. J., & Seligman, M. E. P. (1992). Cognitive therapy and the prevention of depression. *Applied and Preventive Psychology, 1*, 89–95.

Hollon, S.D., & Beck, A.T. (1994). "Cognitive and cognitive-behavioral therapies." In M. J. Lambert Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change*, 5th Edition, pp. 447-492. New York: John Wiley & Sons.

Kinderman, P. (2009). The future of counselling psychology: A view from outside. *Counselling Psychology Review*, 24(1), 16-20.

Leahy, R. L. (2008). The Three Waves of Behavior Therapy: Course Corrections or Navigation Errors? [A closer look at ACT]. *The Behavior Therapist*, Special Issue, Winter, 147-157.

Merrett, C. & Easton, S. (2008). The cognitive behavioural approach: CBT's big brother. *Counselling Psychology Review, 23*(1), 21-32.

National Institute of Clinical Excellence. (2004). *Anxiety: management of anxiety (panic disorder, with or without agoraphobia, and generalised anxiety disorder) in adults in primary, secondary and community care.* (Reference: CG22). Retrieved February 6, 2009, from http://www.nice.org.uk/nicemedia/pdf/cg022fullguideline.pdf.

National Institute of Clinical Excellence. (2007). *Depression: management of depression in primary and secondary care.* (Reference: CG23). Retrieved September, 2, 2009 from http://www.nice.org.uk/nicemedia/pdf/CG23fullguideline.pdf.

Palmer, S. & Woolfe, R. (Eds.). (2000). *Integrative and eclectic counselling and psychotherapy.* London: Sage.

Powers, M. B., Zum Yarde Sive Yarding, M. B., & Emmelkamp, P. M. G. (2009). Acceptance and Commitment Therapy: A meta-analytic review. *Psychotherapy and Psychosomatics, 78,* 73-80.

Strawbridge, S. & Woolfe, R. (2003). Counselling psychology in context. In R. Woolfe, W. Dryden, S. Strawbridge (Eds.), *Handbook of counselling psychology,* (pp. 1-22). London: Sage.

Turpin, G., Richards, D., Hope, R., & Duffy, R. (2008). Delivering the IAPT programme. *Healthcare Counselling and Psychotherapy Journal, 8,* 2-8.

SECTION A

Assessing the Effectiveness of Acceptance and Commitment Training (ACT) as a Brief Preventative Intervention

Abstract

Objectives:
Three studies addressed the effectiveness of a preventative Acceptance and Commitment Therapy (ACT) training for university students and university employees. The studies aimed to explore whether changes in participants' psychological well-being would be mediated by the mechanisms of change theorized as central in ACT.

Design and Method:
The studies adopted an embedded mixed method, repeated-measures randomised controlled trial design. In the first study 65 participants recruited from a university student population were randomly assigned to one of two conditions: 1) a training day (6 hours) based on Acceptance and Commitment Therapy (ACT); 2) a waiting-list control group. The intervention was delivered to groups of participants. Participants in both conditions were required to complete outcome and mediation measures at baseline (Time 1), at one month (Time 2) and two months after the training (Time 3). At two months post, participants in the intervention group were also asked to provide written feedback reflecting on the impact of the training. The second and third studies utilised similar methodology. Specifically, in the second study, 71 participants were recruited from a university student population, and in the third study 68 participants were recruited from the university workforce. Assessments were completed at similar time points as in the first study.

Results:
The first study (students) resulted in significant between-group differences on mental health variables at one month benefiting the intervention group. The second study (students) indicated beneficial improvements in the intervention group's mental health at two months post intervention. There was some evidence of ACT-consistent mediation in these studies. The third study (employees) failed to identify significant improvements for participants in the ACT condition although participants in the waiting list group had evidenced deterioration of their mental health at one-month. Participants across studies described the experienced impact of the intervention and noted barriers of engaging with the training skills.

Conclusions:
Brief ACT preventative interventions could be of potential value as prophylactic approaches. The study identified a requirement of a longer intervention format to enhance engagement with training skills. The study outlines recommendations for improvements of future preventative ACT projects.

Chapter 1

Research Literature Review

1. Introduction

Preventative interventions in the area of mental health are in the forefront of European and UK policies. The National Institute of Mental Health in England (NIMHE) has published a directive for promoting mental health declaring that "the government is committed to a greater understanding of and focus on well-being and work is underway to explore how policies might change with an explicit well-being focus" (p. 3, 2005). These proposals are introduced at a time when the World Health Organisation (WHO, 2001) confirms that 450 million people live with a mental health problem and predicts that by the year 2020, depression will be the second leading cause of disease burden in the world (Murray & Lopez, 1996). The Sainsbury Centre for Mental Health (SCMH) estimates a cost of over £77bn a year in the UK due to mental health care costs, economic losses, and premature death (SCMH, 2003). Consequently the NIMHE expects significant economic and societal benefits resulting from mental health promotion and prevention initiatives (NIMHE, 2005).

2. Counselling psychology (CP) and prevention

Several authors attempted to define prevention. Caplan (1964) differentiated prevention into primary (i.e., reducing the emergence of new cases of a disorder), secondary, (i.e., lowering the prevalence of a disorder through identifying those at high risk or at the initial stages of a disorder) and tertiary (i.e., reducing the impact of an existing problem) whilst Gordon, made a distinction within universal (i.e., benefiting everyone in the population), selective (i.e., appropriate for those at risk) and indicated prevention (i.e., appropriate for those at high risk but are asymptomatic; 1987, cited in Holden & Black, 1999). Caplan and Gordon's definitions are functional as they supply entry points for preventative initiatives. For example, counselling psychologists are traditionally involved in secondary or tertiary prevention (i.e., remediation). However, certain authors emphasized the need for primary and universal prevention initiatives in CP as they promise more widespread impact (e.g., Conyne, 2000). Romano and Hage (2000) called upon counselling psychologists to initiate prevention in a variety of contexts, for diverse populations, and across the life-span.

According to Holden and Black (1999) interest in prevention was prominent in the 1960s'; however, it gradually decreased due to funding and methodological limitations (e.g., Hansen, 1981; Krumboltz, Becker-Haven, & Burnett, 1979). O'Byrne (2002) reported that an

examination of articles published in CP journals from 1985 to 1999 revealed that only 1.29% included primary prevention and subsequent attempts to revitalize prevention in the 2000s were not successful (e.g., Hesketh, 2000; Hill, Thorn, & Packard, 2000). In a USA survey of randomly selected counselling psychologists, Goodyear et al. (2007) reported that only a quarter of the respondents engaged in prevention. In the UK the status of prevention in CP is less clear as there is shortage of published papers (e.g., Abraham & Mitchie, 2005; Hutchings & Lane, 2006). In an article calling for the renaissance of prevention in the UK, Ball (2008) reintroduced Seligman's (1998) concern that prevention is psychology's 'forgotten mission.' Nevertheless, in some fields prevention is burgeoning. Primary and secondary prevention initiatives in the form of stress management training (SMT) in the occupational and educational domain are supported by growing interest and a large research base. It is to these attempts that we now turn our attention.

3. Stress management training (SMT)

3.1. A transactional definition of stress

In 1988 Romano made a strong case for CP to engage with preventative stress management training in major societal institutions such as occupational and educational settings. The UK's Handbook of Counselling Psychology also emphasizes the profession's responsibility for prevention in the occupational domain (e.g., Palmer, 2003). As stated by Palmer (2003) "counselling psychologists should see their role as facilitators, educators and organizers of self-help services rather than just individual therapists" (p. 581). Stress management has grown to be an umbrella term that incorporates various interventions targeting several mental health variables (van der Klink, Blonk, Schene, & van Dijk, 2001). To understand the reasons underpinning this phenomenon it is useful to briefly consider the development of the term *stress* and its consequences in applied psychology.

There are at least three well-known definitions of *stress* (Dewe & Trenberth, 2004). Specifically these are a stimulus-based approach, a response-based approach, and a transactional-based approach. In brief, according to Rout and Rout (2002) the stimulus-based approach describes stress as an environmental demand impacting on the individual (e.g., a noxious event) whilst the response-based approach, stems from a biological framework and defines stress as the physiological response of the organism when faced with a given demand (e.g., 'fight or flight' response). According to Lazarus (2006) both definitions fail to account

for differences across individuals in the experience of stress. Lazarus and Folkman (1984) postulated that although these definitions capture a dimension of the concept, *stress* could be better defined through the dynamic exchange between the stimulus and the response. This rationale gave rise to the influential transactional approach in the stress literature. According to the transactional/appraisal model, stress is neither a stimulus nor a response but rather a process that incorporates the individual's interpretation of a given stimulus (Lazarus & Folkman, 1984). Lazarus and Folkman (1984) proposed that people engage in two interactive appraisal procedures, namely: primary appraisal (i.e., an examination of the significance of a given stressor) and secondary appraisal (i.e., an examination of one's resources for overcoming the stressor). This emphasis on appraisal had important implications for the stress management literature. The individual was no longer considered passive but had the ability to interact with the stressor and moderate its impact. According to Dewe and Trenberth (2004) this position was crucial as it provided the means for conceptualising an adaptive response by viewing stress as an experience affected by changing one's resources or coping skills.

Lazarus and Folkman's (1984) conceptualisation of stress was compatible with the development of skills-based psychological interventions that could be delivered in group settings. This model coincided with a widespread application of cognitive-behavioural interventions which also emphasized the role of cognitive interpretation (e.g., Beck, Rush, Shaw, & Emery, 1979) and is consistent with a turn towards strengths promotion in the prevention literature (e.g., Seligman & Csikszentmihalyi, 2000). It is not surprising that this model triggered research interest around the costly impact of stress on various populations such as employees and students, as discussed in the next section.

3.2. Stress management in the workplace

It has been argued that worksite prevention may offer benefits on a societal level (i.e., reduced absenteeism, loss of productivity, and health care consumption; Hollander & Lengermann, 1986; van der Klink, Blonk, Schene, & van Dijk, 2001), on an organizational level (i.e., enhancing productivity; Murphy & Sorenson, 1988), and on the individual level (i.e., reduction of distress; Ivanchevich et al., 1990). There appears to be an agreement concerning the need for implementation of these programs. For instance, Healy (1991) reported that 27% of surveyed workers considered their job as the main factor for

experiencing stress over the impact of divorce or death. The burden of occupational stress is further illustrated by an examination of UK statistics. Based on the HSE (Health & Safety Executive) in the period of 2007-8 almost half a million workers stated that they were affected by occupational stress at a level that caused illness. This resulted in an estimated 13.5 million working days lost, thus depicting work-related distress as the main cause of absenteeism (Labour Force Survey). The HSE (2003) stated that occupational distress had an estimated cost of £3.8 billion pounds on the UK economy. Given these statistics it is not surprising that worksite interventions are becoming increasingly popular. In a series of surveys by the Department of Health and Human Services (USA) it was found that the frequency of worksite stress management programs had gradually increased from 27% in 1985, to 35% in 1992 to 48% in 1999 (Nigam, Murphy, & Swanson, 2003). Indeed, the workplace provides an excellent setting for implementation of universal prevention as it facilitates access to large numbers of individuals that are already members of a specific system (Murphy, 1984; Martin, Sanderson, & Cocker, 2008).

3.3. Stress management in academic institutions

University and college students have been targeted in prevention schemes as this population allows access to young adults who may be aided in avoiding the onset of psychological difficulties (Bramesfeld, Platt, & Schwartz, 2006; Steinhardt & Dolbier, 2008). A study by Sax (1997) reported that college/university students are increasingly more distressed and though this statement has been challenged (e.g., Schwartz, 2006), there is a consensus on the value of prevention for this population. For example, Ross, Niebling and Heckert (1999) identified a variety of stressors that are pertinent to students, such as intrapersonal (i.e., changes in living habits), academic (i.e., increased workload), and environmental (i.e., financial) challenges. Sax (1997) also reported that students are faced with career choices and job search difficulties. Moreover, the American College of Health Association (2006) surveyed 50,000 students across 74 campuses and found that one-third of the respondents (32%) identified stress as a central barrier to academic performance. Other findings suggest that heightened levels of stress in this population are related with harmful behaviours such as problematic drinking (e.g., Sadava & Pak, 1993) and smoking (e.g., Naquin & Gilbert, 1996). In view of the above, the reasons for targeting college/university students with preventative activities are apparent. Indeed, campuses are ideally placed for universal prevention

initiatives as they offer the practical advantage of accessing large numbers of adults in an environment ideal for personal development.

To reiterate, the development of Lazarus and Folkman's (1984) model of stress instigated interest in stress management interventions. Stress management initiatives were supported by evidence that unhelpful coping (e.g., avoidant coping, locus of control, negative affectivity, suppression, Type-A behaviour) predicted increased stress (e.g., Bond & Bunce, 2003; Decker & Borgen, 1993; Parkes, 1990; Spector & O'Connell, 1994). Furthermore, the idea of teaching coping skills coordinated with developments in cognitive behavioural therapy (CBT) and its emphasis on client empowerment and skills-development. In fact, Lazarus and Folkman (1984) stressed the compatibility between CBT and the transactional model of stress in their seminal book (p. 374) and as a result, most stress management initiatives have historically been CBT based. However, the term CBT does not represent a unified model. The development of CBT has been separated into three evolutionary waves (Hayes, 2004). Specifically, Hayes (2004) refers to a 'first', a 'second' and a 'third wave', each one having a different conceptual emphasis[1]. Though traditionally stress management training is associated with 'second wave' CBT, 'third wave' interventions are entering this field and are of interest in the present investigation. What follows is a brief overview of the historical development of CBT.

4. The evolution of cognitive behavioural therapy (CBT)

4.1. The 'first' and 'second wave'

The 'first wave' refers to the emergence of behavioural therapy which aimed to link psychotherapy to basic science and came as a response to Freudian psychotherapy that was considered unscientific (e.g., Bach & Moran, 2008; Rachman, 1997). Behavioural therapy can be tracked back to the work of well-known behaviourists on classical conditioning (e.g., Pavlov, 1927 as cited in Bach & Moran, 2008; Watson, 1913). It reflected an effort to reveal

[1] The terminology of differentiating CBT models into three evolutionary waves has been recently challenged (e.g., Hofmann, 2008; Leahy, 2008). Specifically, Leahy (2008) suggested that ACT is potentially the sole representative of a lonely 'third wave' whilst Hofmann (2008) stated that ACT techniques are not new but rather recycled versions of older therapeutic models such as the Eastern 80-year-old Morita therapy. Hofmann (2008) called for an integration of techniques across CBT models and suggested abandoning the term 'third wave'. However, in the present thesis it has been decided to maintain the reference to CBT evolutionary waves for ease of presentation.

the means of modifying behaviour (Ciarrochi, & Bailey, 2008). Indeed, behavioural therapy had notable success developing procedures that are still used in many treatment protocols such as systematic desensitisation, relaxation training, reinforcement schedules, and shaping (e.g., Wolpe, 1958, Catania, 1998). Despite its popularity at the time, the movement gradually became less pertinent mainly due to its limited success in treating depression and its failure to account for the impact of language and cognitive processes that were becoming popular at the time (e.g., Ciarrochi & Bailey, 2008).

'Second wave' CBT came as a response to behaviour therapy's limitations. It sought to illuminate the cognitive processes underlying behaviour whilst incorporating analogies from computer science (e.g., Ciarrochi & Bailey, 2008). This movement is associated with the work of A. T. Beck (1976) and A. Ellis (1962) both of whom theorised a link between dysfunctional cognitions and emotional/behavioural disturbance. According to Ciarrochi and Bailey (2008) 'second wave' CBT incorporates different models, however, a common factor is an emphasis on interpretation of stimuli and its impact on emotion and behaviour. It is noteworthy that CBT retained the behavioural techniques developed during the 'first wave' (e.g., Rachman, 1997); this integration resulted in the title cognitive-behavioural therapy (CBT). In general, interventions aim to introduce adaptive thinking styles and teach skills to manage adversity (e.g., Bach & Moran, 2008). Given 'second wave' CBT's emphasis on cognitive interpretations and the central role of coping, one can easily draw parallels to the transactional model of stress and its emphasis on appraisal. A 'second wave' CBT model widely used in the stress management literature is Meichenbaum's stress inoculation training (SIT, 1985) which incorporates a thought challenging component (e.g., disputing dysfunctional cognitions and developing more adaptive interpretations) and a coping-skills element (e.g., self-instructional statements to facilitate coping).

'Second wave' CBT has grown in popularity and has accumulated an impressive outcome literature (e.g., Chambless & Peterman, 2006; DeRubeis, Gelfand, Tang & Simons, 1999). However, this movement is not without its failings. For example, Bach and Moran (2008) propose that CBT has lost its links with basic science and though CBT models are meaningful in the clinical sense, it is unclear what the 'active ingredients' of interventions are and whether 'cognitive' interventions contribute to effectiveness over and above behavioural components (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Indeed, mediation research in CBT (e.g., Beck, Rush, Shaw, & Emery, 1979) has arguably failed to produce convincing

results to support its proposed mechanism of change (that is, cognitive restructuring of negative thoughts; e.g., Burns & Spangler, 2001; Hollon, Evans, & DeRubeis, 1987; Jacobson et al., 1996; Zettle & Hayes, 1987). Similar difficulties are observed in component analysis studies (e.g., Gortner, Gollan, Dobson, & Jacobson, 1998). [2]As a result, many authors have questioned whether interventions with an emphasis on cognitive restructuring are imperative in psychotherapy (e.g., Hayes et al., 2006; Segal, Teasdale, & Williams, 2004).

4.2. The 'third wave'

Further to the limitations of 'second wave' CBT, new therapeutic models emerged that moved away from focusing on cognitive change and introduced alternative means of therapeutic intervention, such as acceptance and mindfulness. These approaches have been coined 'third wave' and some examples are Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999), Mindfulness-Based Cognitive Therapy (Segal, Williams, & Teasdale, 2001), and Dialectical Behaviour Therapy (Linehan, 1993). According to Hayes (2004) a common strand across these approaches is refraining from an examination of the form or frequency of psychological experiences (e.g., the content of thoughts) and concentrating on their context and function.

The present investigation focuses on Acceptance and Commitment Therapy (ACT). ACT has made its way into occupational settings as a stress management intervention. This approach is appropriate as it may be delivered in groups, it can impart 'skills' through an experiential or didactic style and its model of change is broad enough to incorporate several forms of psychopathology making it applicable for various populations (Flaxman & Bond, 2009). In addition, ACT is consistent with Lazarus and Folkman's (1984) model of stress which maintains that one can intervene on stress either by attacking and changing the stressor or by enhancing individuals' internal resources for managing strain. ACT primarily aims to enhance individuals' internal resources for dealing with adverse experiences but in addition maintains a strong emphasis on effective behaviour for responding to stressors. The following

[2] It is noteworthy that these criticisms of 'second wave' CBT have recently been challenged in the literature. For example, a series of recent studies have managed to successfully support the theoretical suggestions of 'second wave' CBT and illustrate the mediating role of restructuring cognition (e.g., Hofmann, 2004; Hofmann et al., 2007; Kendall & Treadwell, 2007). These studies have mainly concentrated on the treatment of anxiety disorders however and reflect the application of more recent 'second wave' CBT models for anxiety and panic rather than Beck's et al. model (1979).

section concentrates on ACT by presenting its therapy model and reviewing its outcome literature.

5. Acceptance and Commitment Therapy (ACT)

5.1. ACT's theory of change

ACT is one of the most widely known 'third wave' CBTs (Forman, Herbert, Moitra, Yeomans, & Geller, 2007). It is based on the philosophical tradition of functional contextualism and on a well-researched behavioural-analytic theory of human language and cognition, the 'relational frame theory' (RFT; Hayes, Barnes-Holmes, & Roche, 2001; Hayes, Strosahl, Bunting, Twohig, & Wilson, 2004; see Appendix 1, pp. 175-177 for an overview of functional contextualism and RFT). ACT has emerged from the behavioural strand of CBT and, therefore, advocates the development of treatment models based on theory underpinned by basic research (Hayes et al., 1999). This drive is contrary to 'second wave' CBT that is said to have lost its links to basic science (e.g., Hayes et al., 2006).

According to Hayes et al. (2006) psychopathology emerges when individuals become *psychologically inflexible* (p.6); that is, when behaviour becomes dependent on verbal and cognitive relations (i.e., rules) rather than experience. Psychological inflexibility is expressed by reduced ability to respond adaptively to challenging internal and external experiences (Hayes et al., 1999). According to Hayes et al. (2006) psychological inflexibility is maintained through two processes: *cognitive fusion* and *experiential avoidance*. Cognitive fusion manifests when thoughts take on a literal quality and are perceived as real experiences (i.e., the evaluation "I am worthless" is conceived as a tangible description of self; Hayes et al., 1999). Experiential avoidance on the other hand is the reluctance to experience negative internal phenomena like thoughts and feelings and a tendency to try to avoid or reduce them (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Hayes et al. (1999) has proposed that experiential avoidance is a sign of our society's emphasis on 'feeling good'. In a review of research evidence Biglan, Hayes, and Pistorello (2008) and Kashdan, Barrios, Forsyth, and Steger (2006) concluded that there is strong evidence that increased experiential avoidance is a predictor of psychological and behavioural difficulties and may be a vulnerability factor for psychopathology.

According to Hayes, Strosahl et al. (2004) internal control efforts are unsuccessful because further to behaviourally avoiding a specific event often thoughts about aversive events become stimuli to be avoided. Consequently, the individual may engage in repetitive and vain attempts to reduce unpleasant internal experiences gradually limiting one's response repertoire in life (e.g., Hayes et al., 2006). ACT's primary aim is to increase *psychological flexibility* (see Appendix 2, p. 178 for ACT psychopathology model) by helping individuals become less attached to conceptualised phenomena and teaching them to focus on the present moment regulating behaviour in view of long-term values instead of transient thoughts (Hayes et al., 1999). Biglan et al. (2008) resembled psychological flexibility to a resilience factor, implying that ACT could have widespread impact as a prophylactic approach rather than merely a clinical method. According to Hayes et al. (1999), psychological flexibility is said to be developed through six interrelated processes:

Acceptance: contrary to experiential avoidance, individuals are encouraged to abandon their attempts to control internal events.

Cognitive defusion: aims to alter individuals' relationship with their thoughts and reduce their literal quality. This is achieved by developing new contexts for interaction with thoughts that do not facilitate their unhelpful functions (i.e., observing a thought non-judgementally). Cognitive defusion does not aim to decrease thought frequency but may reduce *believability* and preoccupation with internal events.

Being present: individuals are taught to engage with and observe the present moment without taking on an evaluative stance.

Self as context: ACT attempts to enable contact with a part of the self that is experienced as a stable sense of perspective (e.g., through mindfulness exercises). Making contact with the 'observer' part of self helps clients become more aware of their ability to contain transient internal events while remaining relatively unthreatened by them.

Values: individuals are helped to clarify their valued directions in various areas of living (i.e., relationships, career).

Committed action: individuals engage with behavioural goals and actions consistent with their chosen values. In ACT, acceptance and defusion are the tools by which people are enabled to follow valued directions as they develop willingness to experience uncomfortable experiences.

It is worth emphasizing that ACT's aim is not symptom reduction but an attempt to facilitate clients to build broader and more fulfilling lives (e.g., Ciarrochi & Bailey, 2008). It follows that ACT therapeutic encounters may differ from typical 'second wave' CBT sessions, which are focused on challenging dysfunctional cognitions. ACT therapists are likely to use mindfulness techniques, acceptance, value-clarification exercises, and rely greatly on experiential learning, the use of metaphor and paradox to convey their message (Ciarrochi & Bailey, 2008). The next section seeks to provide a brief overview of ACT's outcome literature.

5.2. ACT's outcome literature

The literature examining the effectiveness/efficacy of ACT for clinical and non-clinical populations has grown in recent years. In a comprehensive meta-analysis Hayes et al. (2006) reported that comparing ACT to other structured interventions resulted in an average medium effect size in favour of ACT (at post .48 [n=456] and .63 [n=404] at follow-up) while, studies that compared ACT to a control condition produced higher effect sizes (.99 at post-intervention [n=248] and .71 [n=176] at follow-up). Indeed, ACT was found to be effective in a variety of studies and across different populations. To give an indication of its broad applicability, ACT was effective in reducing usage of polysubstance-abusing opiate users (e.g., Hayes, Wilson et al., 2004), reducing hair pulling in trichotillomania (e.g., Woods, Wetterneck, Flessler, 2006), seizure reduction in epilepsy (e.g., Lundgren, Dahl, Melin, & Kies, 2006) and symptom reduction in self-harming women with BPD (e.g., Gratz & Gunderson, 2006) amongst other studies.

Many investigations focused on examining ACT's process variables as mechanisms of change, in an effort to provide evidence for its underlying model. For instance, in two investigations addressing ACT's effectiveness for chronic pain, the authors reported that ACT reduced patients' levels of depression, pain related anxiety, physical disability, and psychological disability via increases in participants' *acceptance* of pain (McCracken,

Vowles, & Eccleston, 2005; Vowles, McCracken, & Eccleston, 2007). For instance, participants with increased acceptance of pain were less likely to struggle with pain and related feelings and could attend to behavioural goals. In two other investigations Bach and Hayes (2002; *N*=80) and Gaudiano and Herbert (2006, *N*=40) found ACT (plus treatment-as-usual: TAU) to be beneficial for inpatients with psychotic symptoms in comparison to standard TAU (consisting of medication, group or individual psychotherapy, psychiatric care and support from social services). Both studies indicated that participants in the ACT group did not report a reduction in hallucination frequency (indeed, Bach and Hayes found an increase of these cognitions post-intervention). However, participants in the ACT group experienced reduced hallucination *believability* (i.e., an indicator of cognitive defusion) in both studies. This ACT mechanism (cognitive defusion) was strongly associated with reductions in hallucination-distress at post-intervention over the effect of hallucination frequency (Gaudiano & Herbert, 2006). Gaudiano and Herbert (2006) reported that ACT improved patients' social functioning, global impairment, and distress while Bach and Hayes (2002) reported a 50% reduction in re-hospitalization rates after four sessions of ACT plus TAU. Comparably, in a small, within-subject, repeated measures (*N*=19) ACT investigation for social anxiety disorder Dalrymple and Herbert (2007) reported significant improvements in participants' quality of life and social anxiety symptoms compared to a four-week baseline period. The researchers reported that consistent with ACT's model earlier reductions in participants' experiential avoidance predicted changes in symptom severity.

ACT asserts that therapeutic change occurs through different mechanisms than those proposed by traditional CBT (or CT; e.g., Beck et al., 1979). Few studies have contrasted ACT and CBT's proposed processes of change or addressed their comparative strength. In an early ACT study Zettle and Hayes (1986, *N*=18) compared an early version of ACT with CT for participants with depression (the CT conditions were originally two but were later merged). Both interventions improved depression outcomes at post and at two-month follow-up. Zettle and Hayes noted that ACT produced a stronger effect at two-month follow-up. Hayes et al. (2006) re-analysed this data by conducting mediation analyses, and found that ACT outcomes were mediated by reductions in respondents' believability of dysfunctional thoughts, a mechanism consistent with ACT's theoretical model. In a similar study Zettle and Rains (1989, *N*=31) reported a slightly stronger outcome for ACT in a trial comparing ACT and two versions of CT for depression (a complete CT package and a package omitting

cognitive distancing). Consistent with ACT theory, ACT did not reduce the frequency of dysfunctional attitudes as much as CT in this study.

In a field effectiveness trial, Forman et al. (2007, *N*=101) randomly assigned 101 patients of an outpatient clinic (with a primary diagnosis of anxiety or depression) to either receive ACT or CBT. The authors reported equivalent outcomes across conditions. Even though Forman et al. (2007) did not conduct mediation analyses, they reported that both treatments had influenced their hypothesized mechanisms of change (i.e., ACT reduced participants' levels of experiential avoidance, and increased levels of awareness, and acceptance). Similar findings were reported in a small (*N*=28) investigation comparing ACT to CBT (both interventions were administered by trainee therapists) for general outpatients (Lappalainen et al., 2007). The authors reported positive outcomes for both interventions although participants treated with ACT reported fewer symptoms post-intervention. Lappalainen et al. (2007) also noted that ACT altered individuals' acceptance early on in the intervention, while CBT changed individuals' self-confidence. The authors concluded that these findings reflect different change processes for the two interventions. Finally, Zettle (2003; *N*=24) compared six individual sessions of either ACT or systematic desensitization (SD) for college students with mathematics anxiety in a repeated-measures study. The authors found both interventions to be effective although only SD reduced trait anxiety. While examining the processes of change, Zettle (2003) reported that for ACT: reductions in experiential avoidance predicted reductions in mathematics anxiety, while participants with higher levels of experiential avoidance benefited more from the ACT intervention.

Most of the studies reviewed so far have investigated ACT's effectiveness with clinical populations. However, ACT has also been administered as a brief preventative or educational intervention. Applying ACT in a brief training context is consistent with the notion that psychological flexibility is a skill that can be developed with practice (Hayes et al., 2006). Indeed, helping individuals increase their psychological flexibility may be useful as higher levels of psychological flexibility seem to predict better wellbeing in an occupational setting (e.g., Bond & Flaxman, 2006). Correspondingly, higher levels of psychological flexibility predict better general mental health and work performance, after controlling for the effects of negative affectivity and locus of control (Bond & Bunce, 2003) and after controlling for job control (Bond & Bunce, 2001).

Consistent with this rationale, many researchers administered brief versions of ACT in non clinical settings (1-9 hours). For instance, Lillis and Hayes (2007) conducted a small (*N*=32) non-parametric investigation of a brief ACT intervention for reducing prejudice in the classroom, in comparison to an educational intervention. They followed a counterbalanced within-group design so that both groups received the intervention. The intervention lasted 75 minutes. The authors reported that ACT increased students' positive behavioural intensions at post- and one-week follow-up and that this outcome was mediated by changes in participants' acceptance and flexibility with regards to prejudice-related cognitions. In another investigation, Gregg (2004) compared a one-day ACT plus diabetes-education condition to diabetes education alone for individuals with type II diabetes. Gregg (2004) found that at three-month follow-up participants in the ACT condition experienced significant improvements in self-management and blood glucose levels. The author reported that ACT process measures (i.e., increases in diabetes related acceptance and action) mediated the outcomes for self-management.

The effectiveness/efficacy literature for ACT is encouraging, albeit, limited. Although research projects have demonstrated ACT's effectiveness for different populations, it is difficult to conclude that ACT is more or less effective than other interventions (e.g., 'second wave' CBT) as comparative randomised trials are few and with small sample sizes (e.g., Zettle, & Hayes, 1986 [*N*=18]; Zettle, 2003; [*N*=24]). However, research findings have been very encouraging in terms of validating ACT's proposed mechanisms. Indeed, across studies ACT outcomes were mediated either by increasing individuals' acceptance of thoughts and emotions (i.e., reducing experiential avoidance) or by reducing believability in dysfunctional cognitions (i.e., cognitive defusion). Research findings indicate that ACT does not exert its effects via changing the frequency of dysfunctional cognitions although in some studies these cognitions reduced as a secondary outcome effect (e.g., Flaxman & Bond, 2006; Vowles et al., 2007). However, if ACT's theoretical proposals are to be validated, additional research on its mechanisms is warranted. Furthermore, consistent with Biglan et al.'s (2008) conclusions it would be interesting for future research to explore ACT's efficacy as a preventative intervention. The next section seeks to briefly outline the outcome literature for stress management initiatives in the workplace and academic institutions and to explore ACT research efforts in these fields.

6. Stress management outcome literature

6.1. Stress management literature in the workplace

The literature for worksite prevention is vast. A search revealed several reviews[3] ranging from 1978 to 2009. This section aims to present three of these articles in an effort to appreciate the status of research activities in this area:

1. Murphy (1984)
2. van der Klink, Blonk, Schene, and van Dijk (2001)
3. Richardson and Rothstein (2008)

The majority of studies examine the effectiveness of stress inoculation training (SIT; e.g., Meichenbaum, 1985) which is based on a combination of cognitive restructuring (consistent with 'second wave' CBT), psychoeducation, and relaxation training. Some reviews also examine the effectiveness of other types of intervention (i.e., relaxation training, organisational). A small number of articles examine the effectiveness of ACT worksite interventions and these will be presented independently.

Murphy (1984) conducted a descriptive review of 13 investigations and observed great variability across projects. The training formats differed with intervention length ranging from 1 to 15 sessions and participant contact ranging from 1 to 16 hours. Variability was also observed on the outcome measures utilised, such as physiological measures (i.e., blood pressure, forehead EMG) and self-report measures (i.e., anxiety, stress, coping). Most interventions had a preventative focus (nine out of 13) and most programs included relaxation training and stress psychoeducation. Six studies included CBT techniques ('second wave') alongside relaxation; five of these reported significant improvements for the intervention group. Murphy concluded that the majority of studies were more effective for the intervention group, though in some cases the control group also improved. Overall, Murphy identified a handful of studies that compared different interventions and concluded that there was a need for further comparative investigations. In addition, he raised a number of questions. He questioned whether positive outcomes could be attributed to specific intervention effects or

[3] The literature search revealed several reviews however not all are presented here to avoid repetition (e.g., Beehr & Newman, 1978; DeFrank & Cooper, 1987; Murphy, 1996; Saunders, T., Driskell, J. E., Johnston, J. H., & Salas, E., 1996).

whether they were indicative of *non-specific factors* such as perceived credibility of treatment, participants' expectations, or even the quality of the participant-researcher relationship. Furthermore, he called for projects to examine specific factors moderating participants' learning (e.g., socioeconomic, attitudinal factors). He also mentioned that research needed to identify factors affecting the maintenance of training gains and called for a review of the costs versus the benefits of these interventions. Murphy observed that the methodological quality of the reviewed studies was variable however he did not exclude methodologically poor investigations. This decision was criticised by DeFrank and Cooper (1987) who considered Murphy's review problematic. This review was conducted at a time where the worksite intervention literature was in its early stages, however, Murphy's observations where proven to be insightful of methodological flaws that were to be emphasized later on.

van der Klink et al.'s (2001) meta-analysis came about twenty years later and had the primary aim of addressing the effectiveness of worksite programs through quantitative means and comparing the efficacy of different intervention types. van der Klink et al. cast a wide net including organisation-focused, cognitive-behavioural, relaxation and multimodal[4] approaches. They reviewed 48 studies that had an experimental or quasi-experimental design. The mean pre-post assessment period was approximately six weeks and the mean dropout percentage was 11%. Intervention outcomes were evaluated on five dimensions including quality of work life, psychological responses and resources (i.e., self-esteem, mastery, coping skills), physiology (i.e., tension), complaints (i.e., stress, depression, anxiety), and absenteeism. The combined effect size across studies was small (d=.34). Seventeen studies resulted in significant improvements for the intervention group on most outcomes, although organisation-focused interventions were less effective (d=.08). The authors concluded that CBT interventions (d=.68) were effective in improving quality of work life, psychological well-being, and reducing complaints. Multimodal programs were also beneficial on these dimensions (d=.51), albeit ineffective in increasing psychological responses and resources. Relaxation was most effective on physiological indices (d=.35). van der Klink et al.'s study reinforced the view that CBT interventions were a good choice for worksite prevention. Nevertheless, it still remained unclear how interventions worked. This question was essential, in that multi-component interventions such as CBT or multimodal training showed no

[4] Multimodal approaches typically consist of a 'second wave' cognitive-behavioural thought restructuring component alongside relaxation training.

indication as to which elements were effective, thus reinforcing an 'anything goes' approach to intervention development. Furthermore, the question of post-intervention skill maintenance remained unclear. In conclusion, although van der Klink et al.'s review was well-conducted the authors neglected to highlight the aforementioned limitations.

The final meta-analysis presented here was conducted by Richardson and Rothstein (2008) who attempted to update van der Klink et al.'s findings by using a larger pool of studies (up to 2006) and adhering to stricter selection criteria. That is, Richardson and Rothstein (2008) only included randomised controlled trials (both published and unpublished). They reviewed 36 studies (including seven from van der Klink et al., 2001) reporting an overall participant dropout percentage of 16.5%. However, they did not report the dropout range across studies and neither did they report the mean length of pre-post intervention assessment. The intervention types were variable (e.g., CBT, multimodal, relaxation, organisational) and resulted in a medium overall effect size (d=.53). In detail, CBT interventions had the largest effect size (d=1.16) followed by alternative interventions[5] (d=.91), relaxation (d=.50), multimodal (d=.24) and organisational (d=.08). It is unclear why multiple component studies were less effective. Richardson and Rothstein's meta-analysis, yet again, reported limited activity in researchers' attempts to reveal the 'active ingredients' of interventions. Furthermore, although CBT and alternative interventions resulted in larger effect sizes there was large variability across studies. This finding introduces the question of what was different in studies that resulted in larger effect sizes (e.g., different intervention emphasis, different sample size, etc.) however, the authors did not elaborate on this point.

In sum, the three reviews suggest that stress management interventions in the workplace have the potential of being effective for a variety of outcome variables, usually producing a moderate effect size. Interventions that are primarily reliant on 'second-wave' CBT components appear to elicit the largest effects. Most studies lacked consideration of what the active ingredients of interventions were and scarcely examined whether participants continued to practice the skills post-intervention. While the above reviews focused primarily on 'second wave' CBT interventions, a number of studies administered ACT as a stress management intervention in the workplace and these are examined in the next section.

[5] Alternative interventions were training types that could not be classified in other groups.

6.2. *ACT as a stress management intervention in the workplace*

ACT interventions have been administered as preventative or curative interventions in the workplace. In detail, Bond and Bunce (2000) conducted the first ACT investigation in the workplace. The study had a primary prevention focus and was therefore open to all employees in a media organisation in the United Kingdom. They compared a 9-hour ACT intervention (n=24) to an innovation promotion program (IPP: a program teaching participants to modify stressors in the workplace; n=21) and a waiting list control group (n=20). The interventions were delivered in three (three-hour) sessions based on a '2+1' model of delivery.[6] Questionnaire completion was conducted at baseline, before the final training session (three months after the two initial training sessions) and at three-month follow-up. Bond and Bunce reported that ACT was effective in improving participants' psychological wellbeing and depression post-intervention whilst, IPP was only effective in improving depression. The ACT condition had a more pronounced effect on participants' psychological well-being at three-month follow-up, in comparison to the other two groups. Both interventions increased participants' propensity to innovate in the workplace. Effect sizes on the main outcomes were medium to large for both interventions although none of the interventions influenced job satisfaction or motivation. The authors found that ACT produced its outcomes via changes in participants' acceptance of thoughts and feelings (as measured by the Acceptance and Action Questionnaire [AAQ-I]) and not through reductions in the frequency of dysfunctional cognitions. IPP's effect was mediated by work change. Bond and Bunce's study was well-designed with a moderate dropout percentage (27.7%) providing theoretical support for ACT's model of change.

Flaxman and Bond (2006) sought to extent Bond and Bunce's efforts by conducting two worksite interventions for government employees in the UK. In the first study Flaxman and Bond (2006) compared ACT (n=45) to CBT (SIT; n=55) and to a waiting list control group (n=52). The interventions were delivered based on a '2+1' model over a period of three months and were evaluated via a repeated measures design, comparing baseline measurements to three-month assessment (prior to the final training session) and three-month follow up. The outcome and mediation measures included psychological wellbeing, thought reappraisal coping strategies, psychological flexibility (AAQ-16), and frequency of

[6] The '2+1' model of delivery includes two training sessions in two consecutive weeks, followed by a reinforcing session three months later. This model has been thoroughly described by Barkham and Shapiro (1990).

dysfunctional cognitions (DAS). The findings indicated that both interventions improved participants' psychological wellbeing at three-months and at follow-up. Consistent with the underpinning theories of each intervention, the ACT group showed a reduced tendency to use thought reappraisal strategies, whilst the SIT condition indicated an increase in this regard. Furthermore, in three month assessment the effect of ACT was mediated by changes in participants' psychological flexibility (AAQ) but not by a reduction in dysfunctional cognitions. There was no clear pattern of mediation in the SIT condition. Flaxman and Bond (2006) reported moderate to large effect sizes for improvements in participants' psychological wellbeing at three-months and at follow-up. The benefits of this intervention can be further illustrated by the fact that a significant percentage (50%) of individuals who volunteered reported high levels of distress prior to the intervention, thus, qualifying as possible 'cases' of minor psychiatric disorder on the GHQ-12 (Flaxman & Bond, 2006).

In a second research effort Flaxman and Bond (2006) utilised a similar methodology and compared an ACT intervention (n=52) to a waiting list control group (n=35). Outcome and process measures included psychological wellbeing, psychological flexibility, dysfunctional cognitions, and learning at work. Only participants who scored >9 on the GHQ-12 (measure of psychological wellbeing) were included in the analysis. The findings of this investigation suggested that in comparison to the waiting list, the ACT group reported improvements on psychological wellbeing at three-months and at follow-up. The ACT group also indicated increased learning at work across assessment points; however, the between-group differences were not significant on this measure. Mediation tests partly supported ACT's psychotherapy model as intervention effects on psychological wellbeing were mediated by changes in psychological flexibility and the intervention impact on learning at work was also mediated by psychological flexibility (though this effect was not maintained at follow-up). Flaxman and Bond's (2006) investigations had a limitation in the research design; that is, participants in the intervention group completed the post-intervention measurement (at three months) prior to the final training session and in the presence of the investigator, whilst the control group received the measures through the post. This design characteristic raises the question of whether respondents were influenced by demand characteristics. Furthermore, it is noteworthy that Flaxman and Bond (2006) reported a high attrition rate (mean percentage across conditions was 64.3%). Similarly, they reported 60% attrition for the ACT group and 42% for the waiting list. Although this high dropout can be understood given the longitudinal

design, at the same time it also raises questions as to whether respondents completing all the measures were more agreeable with the intervention than those who dropped out.

Another study was conducted by Dahl, Wilson, and Nilsson (2004) who identified 19 Swedish health care workers who were at risk of increased absenteeism due to experiencing stress and chronic musculoskeletal pain. Dahl et al. utilised an additive treatment design where participants were randomly allocated to receive either medical treatment as usual (MTAU; n=8; e.g., visits to medical services, physiotherapy) or MTAU plus four (one-hour) individual ACT sessions (n=11). This investigation found that ACT had a superior impact on participants medical and sick leave utilisation; that is, participants in the ACT group had a mean of 1 day sick leave in comparison to 11.5 days for MTAU post-intervention and 5 days of sick leave (ACT) in comparison to a marked 56.1 for the MTAU condition at six-month follow up. ACT also reduced healthcare utilisation with 1.89 visits to the physician for the ACT group compared to 15.1 for MTAU at six-month follow-up. Though Dahl et al. (2004) did not examine mediation in this study they found that, despite the differences in the sick leave and medical utilisation, the two groups did not differ in their perception of stress or pain symptoms. Dahl et al. (2004) concluded that, consistent with ACT theory, it seemed that the intervention changed the way participants related to their symptoms, not the symptoms themselves. It is noteworthy however, that this study had a small sample size and though the outcomes are impressive it is worth considering that participants had one-to-one contact with a therapist, were pre-screened, and, therefore, this study may not be representative of a standard stress management intervention. More recently, Brinkborg and Michanek (2009) conducted a randomized controlled trial administering a 9-hour ACT intervention for Swedish social care workers (N=106). This study found that ACT improved participants' levels of stress, burnout, and increased general mental health with small to moderate effect sizes at post intervention. However, these differences were only found for participants who experienced high distress at baseline. This study did not find any significant differences on measures of self-esteem, psychological flexibility or work-related demand and control.

A series of studies administered ACT for promoting better practice and reducing burnout in substance abuse counsellors. Most of these investigations administered ACT as a one-day intervention with the exception of Luoma, Hayes, and Twohig (2007) that will be presented first. Luoma et al.'s (2007) research aim was to examine whether a set of eight ACT weekly sessions would facilitate drug counsellors' willingness to engage with group drug counselling

sessions and whether ACT would reduce their propensity for burnout. The comparison condition was a one-day education workshop on group counselling. All participants initially attended an education workshop and were then randomly assigned to an ACT condition receiving eight ACT-based sessions (n=16) and to a control condition (n=14) that received no additional input. Outcome measures assessed post-intervention burnout levels and whether participants engaged more with group drug counselling. The findings indicated that participants in the ACT group were more likely to engage with group drug counselling and to report a higher sense of personal accomplishment, thus suggesting reduced burnout. Luoma et al. (2007) did not conduct mediation analyses in this study so it is difficult to draw conclusions regarding the mechanisms by which these effects emerged. Indeed, given the length of the ACT intervention one could argue that the positive findings could reflect the additional support received by the intervention group rather than specific intervention effects.

Hayes, Bissett, et al. (2004) examined the effect of a brief one-day ACT intervention targeting the stigmatizing attitudes and burnout of substance-abuse counsellors. An ACT group (n=30) was compared to multicultural training (n=34) and to an education condition (n=29). Outcome and mediation measures were completed pre and post-intervention and at three month follow-up. The ACT condition reduced burnout post-intervention and maintained this effect at three-month follow-up. Initially, the ACT condition did not show changes in stigmatising attitudes, however, at three-month follow-up these attitudes had significantly improved in comparison to the other conditions. The multicultural training group reduced stigmatising attitudes and levels of burnout at post-intervention, however, this group did not maintain these gains at follow-up. Hayes, Bissett et al. (2004) reported that ACT exerted its effects via reductions in participants' believability of stigmatizing attitudes. Two additional investigations addressed the effect of a one-day ACT intervention for encouraging drug and alcohol counsellors to utilise newly taught counselling-related material (Pierson, Hayes, & Gifford, 2004; Varra, Hayes, Roget, & Fisher, 2005). In both investigations ACT was more effective than placebo conditions in stimulating counsellors to either learn a new counselling skill (Motivational interviewing; Pierson et al., 2004) or to implement evidence-based treatments (Varra et al., 2005). In fact, Varra et al. (2005; N=60) reported that counsellors participating in the ACT condition admitted to more barriers of applying this knowledge (i.e., negative thoughts), however, they reported less believability in these thoughts and utilized more evidence-based treatments at three-month follow up.

In conclusion, research in the workplace suggests that ACT may produce beneficial psychological and behavioural outcomes when administered as a preventative intervention. Indeed, according to Flaxman and Bond (2009) ACT is appropriate for this type of delivery since the relevant skills (i.e., mindfulness) can be demonstrated relatively easily and developed by most individuals through practice in daily life. Walser and Pistorello (2004) further suggested that administering ACT in groups may have the added advantage of normalising participants' experiences, providing a space where participants can exchange their impressions and most importantly, it offers the opportunity to observe others engage with mindfulness and talk about their chosen values. An interesting finding is that most studies support ACT's theory of change, namely that increases in psychological flexibility or reductions in thought believability mediate outcome effects. It is noteworthy that although most studies have had short follow-up periods, the length of these interventions has also been markedly shorter than traditional stress management programs. The next section examines the stress management literature in academic institutions to appreciate research activities in this domain.

6.3. Stress management outcome literature in academic institutions

An examination of the student prevention literature revealed a small number of published studies with methodological limitations in most cases. The author located 13 randomised controlled trials administering a preventative intervention to university/college students (see table 1, pp. 43-44). There were no studies administering an ACT preventative intervention to university/college students, however, two studies administered a general preventative ACT intervention to high school students, and these are presented below.

A number of studies administered a SMT based on a combination of 'second wave' CBT skills and relaxation training (i.e., stress inoculation training [SIT]). In detail, in a randomised controlled trial Johansson (1991; N=76) found bigger reductions in anxiety and depression six-weeks post-intervention for the SIT group whilst, in a peer-led SIT Fontana et al. (1999) found reductions in state anxiety and heart rate post-intervention (heart rate reduction was maintained at six-months). Johansson's study was only administered to nursing students and did not include any follow-up assessments, whereas Fontana et al. had a small sample size of N=36. Jones and Johnston (2000; N=79) administered a multimodal intervention (e.g., CBT skills and relaxation training) to nursing students that experienced high levels of stress during

a screening in comparison to a waiting list. The researchers tried to improve the methodological limitations of research projects in this domain by including follow-up measurements at seven and nineteen weeks post intervention. In addition, attrition was low (7%) throughout time points. They reported improvements in participants' psychological well-being, state anxiety, and depression whilst they also found increases in coping for the intervention group. The authors suggested that coping may mediate changes in other variables, however, mediation analysis was not conducted. Jones and Johnston (2000) emphasized the lack of methodological rigour in this research area mentioning researchers' failure to report effect sizes in the result section. Interestingly, despite commenting on this limitation they also failed to report effect sizes.

Other studies examined the impact of relaxation training as a preventative intervention. Specifically, Kanji et al. (2006; N=93) compared autogenic training to an attention placebo (laughter therapy) and to a control condition. At two months post-intervention the study had a 33.3% dropout rate (11 participants from the intervention group in comparison to five and six participants from the placebo and control groups). The relaxation course had significant reductions in state anxiety and blood pressure levels at two-months. The authors examined practice maintenance and found that at fourteen months, only four participants from the intervention group (n=32) practiced relaxation daily. This study was relatively well-designed; however, the limited skills' practice at follow-up is noteworthy.

Finally, a more recent type of intervention involves the use of mindfulness training. These programs are of interest in the present review given that ACT has a strong mindfulness element. A well-designed study administering a mindfulness intervention to undergraduate university students was conducted by Oman, Shapiro, Thoresen, Plante and Flinders (2008). These authors randomised 44 students to three conditions (two mindfulness groups and a control group). They later integrated the data from the two intervention groups as they found a similar effect of the two intervention variants. This study had a small dropout rate of 2%. They found that the intervention improved stress post-intervention and at eight week follow up and they also observed increases in participants' perceived level of forgiveness. This was the only study that reported effect sizes (of moderate magnitude). The authors did not examine the mechanisms by which the changes occurred. In fact, Shapiro, Schwartz, and Bonner (1998; N=78) was the only study that attempted to examine processes of change in the student prevention literature. They compared a mindfulness-based intervention to a

control group and found reductions in psychological distress, state anxiety, trait anxiety, and increases in empathy and spirituality. Shapiro et al. examined the direction of these outcomes and found that treatment compliance (i.e., extent of mindfulness practice) predicted trait anxiety, which then predicted changes in depression, state anxiety, and empathy. Depression and state anxiety had an effect on psychological distress and spirituality, respectively. The authors used hierarchical regression to analyse the data, however, they did not clarify the theoretical hypotheses underpinning the order by which they entered the proposed variables in the model.

A series of unpublished studies administered ACT in secondary school settings and are worth considering here. Livheim (2004) conducted a preventative ACT research for secondary school students in Sweden. He recruited 230 students from different secondary schools and randomised them to either receive an ACT intervention or to join a control group. He delivered a 9-hour intervention over three sessions[7]. This study had a longitudinal design in that intervention effects were examined at one- and two-year follow-up. Livheim (2004) reported that an ACT intervention improved students' ability to cope with stress and prevented psychological illness. Indeed, at one- and two-years post intervention, participants in the ACT group experienced better psychological well-being, lower stress and improved psychological flexibility (only at two-years post; Jacobsson & Wellin, 2006). This study was well-designed, with a large sample size and a significant follow-up period. Furthermore there was evidence that improvements in mental health were mediated by increased acceptance of thoughts and feelings. The study also included feedback from students, 88% of whom expressed satisfaction with the course. At two-year follow-up the dropout percentage was 20% and effect sizes were small (d=.2). Livheim's work was replicated by Stavenow (2008) who administered a 12-hour ACT intervention (four sessions) on a group of youths to examine impact on mental health variables and psychological flexibility. The intervention assumed a pre-post measurement design and was administered in a clinical and in a school setting (N=38). Stavenow reported an overall dropout percentage of 31% in this study. The results of this investigation were somewhat ambiguous since the program seemed to enhance participants' psychological flexibility and reduce stress however it evidenced worse psychological well-being post intervention. Stavenow reasoned that increases in observed psychological distress may be an indication of ACT's model which does not aim to reduce

[7] Two sessions were conducted in two consecutive weeks with a follow-up session one month later.

distress but rather to introduce acceptance of such experiences. However, it is noteworthy that ACT trainers in Stavenow's study had little experience in this model whilst this study did not examine how the intervention effects developed over time.

In summary, a brief examination of this literature suggests that preventative interventions in educational settings may have beneficial outcomes in comparison to a control group (12 out of 13 studies had significant outcomes) though the magnitude of this effect is unclear. Outcome measures consist of mainly psychological and physiological measures, in comparison to worksite studies which also include employee performance or sick leave utilisation (e.g., Murphy, 1984; 1996). Student prevention is not as well-researched as worksite prevention and most studies are less methodologically rigorous. For example, most studies focus on specific student populations thus making it difficult to generalise findings. In addition, the majority of studies have small sample sizes, no follow-up assessments, and fail to report effect sizes. Interestingly, these limitations have yet to be emphasized possibly due to lack of published reviews of this literature. Nevertheless, worksite and student prevention have certain similarities in terms of the types of procedures used, the format of the interventions, and chosen methodology. This is not unexpected as researchers in the student literature follow worksite interventions closely and in fact, in many cases they administer interventions to students involved in professional training (e.g., health-care students) thus drawing parallels to worksite prevention (e.g., Jones & Johnston, 2000).

Table 1

List of randomised controlled studies administering a preventative intervention to college/university students

Study	Type of intervention	Population	Design	Sample
Fontana et al. (1999)	Peer-led stress inoculation training (6 sessions)	College students	Randomised controlled trial (pre-post intervention and six-month follow-up)	*N*=36
Johansson (1991)	Stress management program	Nursing students	Randomised controlled trial (pre-post intervention assessment)	*N*=76
Heaman (1995)	Five-week stress management program	Junior nursing students	Randomised controlled trial (pre-post intervention assessment and six month follow-up)	*N*=40
Holtzworth-Munroe, Munroe, & Smith (1985)	Stress management program (six weeks, one-hour weekly)	Medical students	Randomised controlled trial (pre-post and 10 week follow-up)	*N*=40
Dziegielewski, Roest-Marti, & Turnage (2004)	45-minute stress management seminar	Social-work college students	Randomised controlled trial (pre-post intervention assessment)	*N*=48
Kanji et al. (2006)	Relaxation training (eight week intervention period)	Nursing students	Randomised controlled trial (pre-post intervention and two month follow-up)	*N*=93
Charlesworth & Murphy, (1981)	Relaxation training (twice weekly for five weeks)	Nursing students	Quasi-experimental design (pre-intervention assessment, before midterm examinations and before final examinations).	*N*=18

Steinhardt & Dolbier (2008)	Multimodal resilience program (four sessions, two hours each)	University students	Randomised controlled trial (pre-post intervention assessment)	*N*=64
Deckro et al. (2002)	Mind/body intervention incorporating relaxation and CBT techniques (six weeks)	College students	Randomised controlled trial (pre-post intervention assessment)	*N*=128
Jones & Johnston (2000)	Multimodal stress reduction and stress management program (six, two hours sessions)	Stressed student nurses	Randomised controlled trial (pre-post, and follow-up measurements)	*N*=79
Rosenzweig, Reibel, Greeson, Brainard, & Hojat (2003)	Mindfulness-based stress reduction program (MBSR; ten weeks)	Second year medical students	Randomised controlled trial (pre-post assessment)	*N*=202
Oman et al. (2008)	Two variants of meditation merged data for analysis (MBSR; Easwaran's Eight-point program; eight week training)	Undergraduate university students	Prospective randomized controlled trial (pre-post assessment and eight week follow-up).	*N*=44
Shapiro et al. (1998)	Mindfulness-based stress reduction program (seven weeks)	Premedical & medical students	Matched randomized experiment (pre-post assessment)	*N*=78

6.4. Stress management training in the worksite and academic institutions: a critical summary

The preceding two sections provided a brief review of the worksite and student prevention literature suggesting that for the large part, interventions are effective on a variety of outcome measures (e.g., psychological, physiological). The next section seeks to summarise central characteristics of preventative interventions and to highlight methodological issues pertaining to the present investigation.

It is useful to note that most preventative interventions in the worksite and student literature are administered in groups of participants, with the exception of some studies that offer one-to-one support and usually have a remedial focus (e.g., Barkham & Shapiro, 1990; Dahl, et al., 2004). Another characteristic of most investigations is that they assume a primary prevention focus, that is, the intervention is offered to everyone not only to distressed participants. Murphy (1984; 1988; 1996) concluded that most of the studies in the worksite had a preventative aim whereas van der Klink et al. (2001) reported that only four studies out of the 48 they reviewed were remedial interventions. The same trend is noticeable in the student literature (see table 1, pp. 43-44). This characteristic has been criticised. Bunce and Stephenson (2000) suggested that including participants with low strain may dilute intervention effects and result in non-significant results. Indeed, they demonstrated that studies in the workplace suffer from low statistical power, possibly due to participant heterogeneity at baseline. Reynolds and Brinner (1994) stated that primary prevention fails to target participants' individual needs and also argued that it is questionable whether primary prevention activities in the worksite have a prophylactic effect, as short follow-up periods make it difficult to assess this assumption. A similar state of affairs is reflected in the student literature, where out of the 13 studies examined, only six included a follow-up (usually of two-months). Clearly, small follow-up periods may be pinned down to ethical reasons related to withholding the intervention from the waiting list group.

These criticisms are central. Nevertheless, the value of primary prevention lies in the fact that participants are not differentiated during recruitment and whilst not everybody will benefit some participants may, as evidenced by the encouraging outcome literature. It is also interesting that in another review of stress management literature, Saunders et al. (1996)

found that stress inoculation training was of equal effectiveness when participants were highly-anxious or had normal-anxiety levels at baseline, thus offering support to universal prevention initiatives. These methodological difficulties reflect Vera's (2000) concern that prevention is slowly being abandoned in counselling psychology due to methodological difficulties. Clearly, a close examination of research aims and a reflection of cost versus benefits of this type of intervention are warranted at the design stage of any study.

An issue that deserves attention is the approximate length of preventative interventions. Richardson and Rothstein (2008) reported that the mean length of reviewed worksite interventions was 7.4 weeks. The length of interventions in the student literature has not been reviewed previously, however, an examination of the 13 studies included on table 1, revealed a mean length of 6.3 weeks. The question of best intervention length is surrounded by ambiguity. For instance van der Klink et al. (2001) found a significant negative correlation between intervention effectiveness and number of sessions, suggesting that longer interventions may be less beneficial. On the other hand, Saunders et al. (1996) review reported that as the number of sessions increased so did the benefits, however, even one session was deemed beneficial. It is possible that essential length may be moderated by the type of intervention, a reasoning that was supported by Richardson and Rothstein (2008) who found that more sessions reduced the impact of multimodal programs but not of relaxation interventions. It is noteworthy that most programs last for a number of weeks. Interestingly, most ACT investigations in the workplace have administered the intervention in shorter periods (e.g., three sessions, Bond & Bunce, 2000). Indeed, three studies in the USA administered a one-day ACT intervention with positive outcomes (e.g., Hayes, Bissett et al., 2004; Varra et al., 2005; Pierson et al., 2004). The effectiveness of this latter format is impressive through it has yet to be substantially replicated given that all three studies were conducted by the same research team. In addition these studies did not concentrate on improving participants' mental health but rather examined specific outcomes related to counselling practice.

Many authors stated that it is essential to clarify who is likely to participate in this type of intervention (e.g., Reynolds & Brinner, 1994). In the three, one-day ACT investigations noted above, participants were mental health professionals and thus may have been more open to ACT ideas (i.e., Varra et al., 2005; Pierson et al., 2004). In other ACT studies in the workplace participants were primarily white collar workers (e.g., Bond & Bunce, 2000;

Flaxman & Bond, 2006). In the general worksite literature the recruitment criteria have included employees from various sectors (e.g., Murphy, 1996). The recruitment criteria for student interventions, however, are relatively narrow since most participants were involved in health-care training (e.g., nursing or medical students). Another interesting finding is that in worksite studies about 60% of participants are female (e.g., Richardson & Rothstein, 2008; Murphy, 1996) and although gender is not flagged up as a moderating factor (e.g., Carrington et al., 1980), the author did not identify any meta-analyses examining this question. Female overrepresentation is more pronounced in the student literature. An examination of the 13 studies in table 1 (pp. 43-44) revealed a range of 56% to 95% of female participants across studies (with the majority of studies having more than 80% female participants).

The methodological quality of worksite interventions is a matter of debate. In 1996 Murphy concluded that the quality of studies was sufficient, however, recent studies (e.g., Martin et al., 2009) continue to highlight limitations that were raised in the 90s (e.g., Bunce, 1997). A substantial limitation raised by Murphy himself (1996) and repeated by others is the existence of a weak theoretical reasoning underpinning most investigations (e.g., Dewe, 1994; Martin, et al., 2009). To clarify, with the exception of some projects, the majority of studies do not examine whether interventions operate through theoretically consistent mechanisms (e.g., in a CBT program one would assume that improvements might emerge through cognitive restructuring procedures). Many studies fail to clarify what intervention components may be essential (e.g., Stiles, Shapiro, Elliot, 1986). This gap is even more pronounced in the student literature where this debate has yet to emerge.

Reynolds, Taylor, and Shapiro (1993a) stated that one cannot develop an appropriate intervention without developing an understanding of 'how' the intervention works. This question is central in view of an 'equivalence paradox' identified in the worksite literature (e.g., Bunce, 1997; Reynolds & Brinner, 1994). That is, researchers realised that albeit having different theoretical and technical backgrounds, interventions seemed to result in equal effectiveness (Bunce, 1997). Indeed, this finding is also widely recognized in the psychotherapy literature (e.g., Stiles, Shapiro, & Elliot, 1986). In an influential paper, Bunce (1997) suggested that the 'equivalence paradox' could be explained in two ways. He postulated that methodological limitations (e.g., sample size, low participant strain at baseline) may hinder the emergence of significant differences across conditions and secondly, he proposed the possibility that interventions operate through common features such as *non-*

specific factors (e.g., warmth, attention, relationship with trainer). Reynolds et al. (1993a) further suggested that interventions may exert their effects through different, but equally effective mechanisms. The 'equivalence paradox' has been a matter of debate in the worksite literature, and a number of investigations attempted to clarify the means by which interventions exercise their effects (i.e., the 'active' ingredients of interventions). Researchers used at least three methods to examine this issue. In detail, they introduced placebo groups and 'dismantling' procedures, measured specific session-process variables, and finally, turned their attention to research of the mediators of change. The first two approaches are presented briefly, whereas the latter approach is of interest in the present investigation and will be discussed in the following section.

Placebo studies usually compare a theoretically defined intervention to another program that does not target theoretically consistent mechanisms to control for *non-specific* factors (Bunce, 2007). This procedure is usually incorporated in 'dismantling' studies that aim to separate the 'active' ingredients of interventions. The results of such investigations are conflicting. For example, a dismantling study by West, Horan, and Games (1984) compared a complete SIT package with each of its separate components to a control group, and found evidence that 'coping skills' acted as an active ingredient for improving mental health. West et al. (1984) concluded that worksite interventions emanate their effects through theoretically consistent mechanisms. Conversely however, other studies with similar methodology failed to find differences across different conditions (e.g., comparing a full CBT program to an education placebo condition) suggesting that post-intervention benefits could be explained by *non-specific* factors (e.g., Drazen, Nevid, Pace, & O'Brien, 1982; Sallis, Trevorrow, Johnson, Hovell, & Kaplan, 1987). Auerbach (1989) challenged the validity of placebo studies arguing that the development of rapport between participants and trainer in placebo conditions may trigger emotion-focused processes similar to those taught in the intervention condition.

The second methodology that sought to clarify the 'active' ingredients of interventions involved procedures that measured session-process variables. This methodology is borrowed from the psychotherapy literature and involves measuring change in specific (intervention components) and non-specific (e.g., support, sense of relief) factors after each session (Reynolds et al., 1993a & b). A number of investigations that used this methodology reported impact of specific intervention components (e.g., session insight, problem solution) and also observed impact of non-specific factors (e.g., support, relief) thus, supporting the argument

that interventions may exert their effects via a combination of specific and non-specific factors, and that different interventions may indeed have differential impact (e.g., Reynolds et al., 1993a & b; Bunce & West, 1996).

6.5. Stress management interventions and mediation research

A third method to examine the 'active ingredients' of interventions strongly advocated by Bunce (1997) is mediation research. Mediation research seeks to reveal the means by which an intervention exerts its effects. As stated by Baron and Kenny (1986, p. 1173) "a mediator is the generative mechanism" through which an independent variable (i.e., an intervention) affects a dependent variable (i.e., the outcome variable). Figure 1 (p. 49) illustrates the sequence by which a mediator is expected to emanate its effect. It is suggested that when the mediator enters the model, the effect of the intervention on the outcome variable will reduce (path c) and the effect will be carried through the proposed mediator (paths a & b). Baron and Kenny (1986) suggested exploring mediation using multiple regression procedures, an approach that has been updated over the years (see method section).

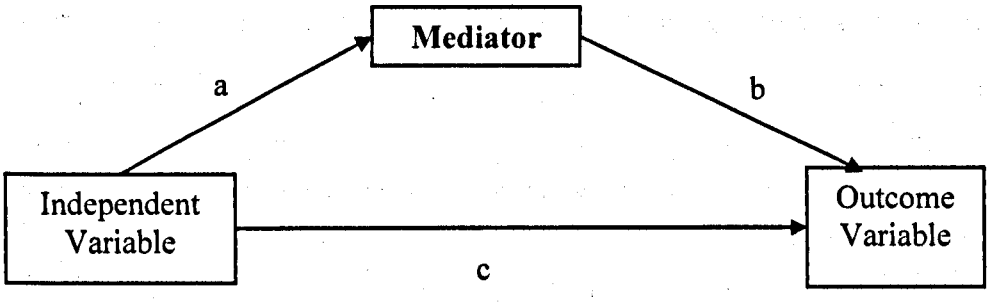


Figure 1. A mediator model (Baron & Kenny, 1986, p. 1176)

Despite the utility of the two aforementioned methods for exploring the 'active ingredients' of interventions, mediation research offers added advantages. For instance, Bond and Bunce (2000, 2001) observed that even though 'dismantling' and session-process methods can indicate whether interventions impact on theoretically consistent variables, they do not go as far as to support statistically whether these variables account for changes in the outcome variables. Flaxman & Bond (2006) further posit that the constructs used in previous placebo and session-process investigations were too general and did not examine specific technical content.

Arguably, mediation research provides the means to better address the crucial question of 'how' change occurs. This is a central issue in counselling psychology since practitioners are expected to embrace theoretical and technical alterations as instructed by research evidence and not maintain blind faith in technique. Indeed, clarifying the mechanisms of change in psychotherapy is valuable as it may facilitate the development of better therapeutic models and elucidate ambiguous issues such as the paradox of outcome equivalence and the question of why some clients respond differently to interventions (e.g., Bunce, 1997; Johansson & Hoglend, 2007). It is evident that the ACT research literature has placed considerable emphasis on studying the mediators of change. Indeed, Hayes et al. (2006) argue that in order to establish ACT as a coherent and distinct therapeutic approach it is necessary to demonstrate its effectiveness and affirm its proposed processes of change. The present investigation will attempt to extend this effort.

7. Thesis outline

The aim of this thesis is to extend ACT prevention research by broadening the scope of targeted populations and by collecting additional evidence for the efficacy of a one-day intervention format. A central emphasis was to examine whether ACT process variables would operate as mediators of change, thus following the methodological recommendations introduced in the stress management literature and potentially providing further support for ACT's model of change. To elaborate, the present thesis incorporates three randomised controlled trials comparing the effectiveness of ACT to a control condition. Two of these studies administered a one-day ACT intervention to university students and one study administered a one-day ACT intervention to university employees. A strong driver for this project was Biglan et al.'s (2008) recommendation of extending ACT preventative research in the educational and occupational domains.

As mentioned above, a chief aim was to seek support for ACT's theory of change through conducting mediation research. Whilst reviewing ACT outcome and worksite literature it became apparent that most trials examining mediation utilise the same measure of psychological flexibility, namely the Acceptance and Action Questionnaire (AAQ). Though this measure is said to reflect the collective impact of ACT's six processes of change, few randomised controlled trials have examined the individual impact of each separate mechanism. Indeed, some investigations have emphasized the mediating effect of defusion by

including thought believability scales. It is surprising that no studies examined the mediating effect of the behavioural element of ACT, namely, values and committed action or of mindfulness as an independent process. This may be due to having few specific ACT measures for these variables. It is notable that ACT component studies have demonstrated the independent effect of each of its separate mechanisms (e.g., defusion –Masuda, Hayes, Sackett & Twohig, 2004; acceptance –Hayes et al., 1999; willingness –Levitt, Brown, Orsillo, & Barlow, 2004; values –Heffner, Eifert, Parker, Hernandez & Sperry, 2003). However, mediation research has not yet differentiated across all mechanisms and arguably it remains unclear whether certain mechanisms take priority. Furthermore, it may be useful to replicate mediation findings with measures other the AAQ to further validate ACT's mediation claims. The present investigation sought to examine a multiple mediator model by incorporating a selection of measures hypothesised to be representative of ACT processes.

7.1. Research Questions

Study 1 (university students): It was hypothesized that a one-day preventative ACT intervention would improve participants mental health in comparison to a waiting list control group and that changes would be mediated through ACT consistent mechanisms (i.e., psychological flexibility, reduced though believability, committed action).

Study 2 (university students) and Study 3 (university staff): Similar to the previous study, it was hypothesized that a one-day preventative ACT intervention would improve participants mental health in comparison to a waiting list control group and that changes would be mediated through ACT consistent mechanisms (i.e., psychological flexibility, mindfulness, reduced thought suppression).

Studies 2 and 3 sought to extend the conclusions that could be drawn from the present research by utilising an explanatory research design and incorporating open-questions at follow-up assessment in an attempt to reveal participants' views of the intervention. It was hypothesized that this format would facilitate further understanding of factors influencing skills' practice, participants' views on the length and content of the intervention as well as other variables.

Chapter 2

Research Method

1. Introduction

This chapter aims to outline the research methodology. Firstly, the research design is presented followed by a detailed overview of the research procedure with an emphasis on describing the research participants, data collection procedures and data analysis methods. This chapter also outlines the Acceptance and Commitment Therapy (ACT) research intervention and clarifies ethical considerations pertaining to this study.

2. Research Design

This thesis consists of three studies. All studies were initially developed to adhere to a repeated measures randomised controlled trial design that compared (1) acceptance and commitment therapy (one-day intervention) to (2) a waiting list control group. Data were collected on various outcome and process measures administered at three time points over a period of three months (Time 1: baseline, Time 2: at one month, Time 3: at two months). A repeated measures design can result in greater power to detect effects (Field, 2006). This design is particularly useful in mediation research where it is important to establish that change in the process variables precedes change in the outcome variables (Johanson & Hoglend, 2007).

After the completion and analysis of Study 1, the researcher developed questions with regards to participants' view of the intervention. At that stage participants had returned spontaneous feedback that seemed helpful in fully understanding the impact of the training. Thus, it was decided to alter the research design and to include open-ended survey questions to encourage participants to comment on the intervention in the subsequent two studies. This was to be completed after filling-in the questionnaires at Time 3. Consequently in Studies 2 and 3 the design introduced a second methodology to better address the research question. This design approximated an embedded experimental model consisting of two phases (Creswell, Fetters, & Plano Clark, 2005). In this design the priority resides with a quantitative experimental method whilst a qualitative phase is ancillary within that methodology (Creswell & Plano Clark, 2007). According to Creswell and Plano Clark (2007) this type of sequential design is advantageous as it can better-explain the results of interventions or follow-up the views of participants. In addition, these designs can be useful when the researcher wants to better understand the results of an intervention and are appropriate when resources are limited

(Creswell & Plano Clark, 2007). Primary emphasis was placed on analysing the questionnaire data of each study through statistical procedures while written feedback was analysed with content analysis. This secondary methodology was employed to enhance this thesis with information on how participants approach ACT skills post intervention, better explain the quantitative findings, and reveal potential limitations or advantages of the training program. Content analysis of written feedback was only conducted for the aggregated data across studies. For a graphic presentation of the studies' design the reader can refer to table 2 (p. 54).

Table 2

Research Design

Condition	Time 1 (Baseline)	Time 2 (Time 1 + 1 Month)	Time 3 (Time 1 + 2 Months)
ACT	XO	X	XY
WAITING LIST	X	X	XO

Note: X= questionnaire administration; O= intervention session; Y=open-ended survey questions; *the research design of Study 1 was identical with the exception that participants did not complete open-ended survey questions though some participants returned spontaneous feedback.

A note on mixing methodologies in this thesis is required. Mixed method research has grown in popularity in recent years (Creswell & Plano Clark, 2007). However, this approach has had to overcome a significant paradigm debate to prove its credibility since its emergence in the early 1970s' (Cook & Reichardt, 1979; Tashakkori & Teddlie, 2003). Objections regarding this methodology mainly amounted to an epistemological debate considering whether paradigms with differing philosophical backgrounds could be reconciled (Smith, 1983). Although these questions have not been fully resolved, Tashakkori and Teddlie (2003) have called upon researchers to approach mixed method research from the philosophical position of pragmatism which involves giving primary importance to the research question and considering "what works" in an effort to best address the research question. Indeed, this philosophical assumption best meets the philosophical underpinning of the present thesis since arguably the utilization of two methodologies could provide a better illustration of how a one-day ACT intervention impacts on participants. Furthermore it is essential to emphasize that pragmatism is closely affiliated to functional contextualism which is ACT's epistemological foundation (Hayes, Barnes-Holmes, & Roche, 2001). Indeed, both

philosophies give primary importance to the criterion of successful working whilst selecting a methodology (Hayes et al., 1999). From this perspective embracing philosophical pragmatism reflects a consistency across multiple layers of this project. That is, the criterion of successful working is introduced on the level of the intervention and in the choice of methodology.

3. Recruitment

3.1. Studies 1 and 2

Recruitment for Study 1 materialised throughout March and April 2008 while the recruitment for Study 2 took place throughout September to October 2008. The primary recruitment sites were City University and King's College, London. The recruitment procedure was identical for the two phases. An advertising campaign was launched at two university sites with the aim of recruiting university students. The projects were publicised via email advertisements and through posters placed at various sites across the universities (see Appendix 3, p. 179, for recruitment material). In order to circulate the email advertisements to students of City University, the author contacted the administrative teams of each individual university department and requested that the advertisements be emailed to all current students. All of the university departments with the exception of the department of nursing and midwifery agreed to circulate this material. Each department was reminded twice to deliver the email advertisement and the administrators either copied the author in the outgoing email or sent a confirmation email. As a limitation, the author did not have further verification as to whether the email advertisements were in fact being sent to all of the students enrolled in the various departments. On the contrary, the delivery of email advertisements at King's College London was conducted through an internal university server thus reaching all the users of the network.

The intervention was advertised as a "psychological skills training" designed to teach participants skills to untangle from difficult thoughts and feelings and move towards effective living. Individuals that were interested in participating were advised to contact the researcher. They were then sent an information letter outlining the research procedure and clarifying ethical considerations (see Appendix 4, pp. 180-1 for information letter). Individuals that expressed consent were randomised in either an intervention or a waiting list condition. The randomisation was conducted with the online software randomisation.com.

3.2. Study 3

The recruitment procedure for Study 3 was conducted throughout August to November 2008 with the aim of recruiting City university employees. Recruitment for Study 3 was conducted (1) via posters placed at various sites across the university and (2) through a list of employees that had expressed their interest in participating in the "psychological skills" training while taking part in an affiliated research project. These participants were contacted via email and were offered the opportunity to take part in this investigation. The study was conducted with the support of the Organisational and Staff Development Unit of City University as part of a staff wellness program. The study was advertised as a "psychological-skills training" designed to help individuals "work through psychological barriers" like anxiety, stress, worry, and low mood (Flaxman & Bond, 2006, p. 20). The reader can refer to Appendix 5 (p. 182) for a sample of the recruitment material and to Appendix 6 (pp. 183-4) for the information letter for Study 3.

4. Participants

4.1. Studies 1 and 2

In Studies 1 and 2 participants were university students drawn from various departments. Overall, 65 participants (70.5% female) were recruited for Study 1. Participants classified their age group as follows, 44% were 18-25 years old, 32.8% were 26-30 years old, 9.8% were 31-35 years old, 5% were 36-40 years old, 6.6% were 41-50 years old and 2% were 51-60 years old. Of these participants 62% were postgraduate students, 30% were undergraduate students, and 8% classified themselves as research students.

In Study 2, 71 participants (69% female) were recruited. The participants classified their age group as follows, 55% were 18-25 years old, 24% were 26-30 years old, 11% were 31-35 years old, 6% were 36-40 years old, and 4% were 41-50 years old. Sixty eight percent were postgraduate students, 26% were undergraduate students, 3% were research students, and 4% did not specify. Out of the 71 participants 84.5% were full-time students with 9.9% being part-time students and 5.6% responding as 'other'. Sixty five percent of the participants were not working whilst 23% were involved in part-time work and 13% were employed full-time (these participants indicated that they worked in excess of 31 hours per week). Of the participants that worked, 7% classified their job as clerical or administration, 7% as manual, 9% classified their work as middle management/technical and 7% as senior management/professional. Sixty six percent of the participants described themselves as single

and 28% as married or with partner. Ninety three percent of the participants did not have children.

4.2. Study 3

City University staff was contacted via a participant list that had expressed interest in attending this session whilst participating in an affiliated research project. Overall, 70 participants (86% female) were recruited for Study 3. Participants classified their age groups as follows, 5.3% were 18-25 years old, 15.8% were 26-30 years old, 14% were 31-35 years old, 12.3% were 36-40 years old, 31.6% were 41-50 years old, 17.5% were 51-60 years old and 3.5% were 61-70 years old. Seventy five percent of the participants were married or with partner, whilst 22.8% were single. Thirty two percent of the participants had children. Twenty seven percent classified their work as clerical or administration, 31.6% as middle management/technical and 31.6% as senior management/professional. Of these participants 8.8% were employed in the organisation for less than one year, 35% were employed for one to two years, 19.3% were employed for three to five years, 21% for six to ten years, and 15.6% over 11 years. On average they worked 37 hours per week (*sd*=9.23; range=15.5-60), with 41.2% of participants working more than 40 hours per week. Nine percent of the participants stated that they were also employed by another organisation whilst 22.8% stated that they were involved in part-time education.

5. Research procedure for Studies 1, 2, and 3

The intervention consisted of a one-day (6 hour) ACT training session focusing on acceptance, defusion, and value-based action. A counselling psychology trainee was trained in administering ACT group-interventions by an experienced ACT trainer who also acted as research supervisor. All sessions were administered at City University campus. Participants in both conditions were required to complete three batteries of questionnaires across three time points (time 1: baseline, time 2: one month post, time 3: two months post) delivered via the online survey software (surveymonkey.com). If participants failed to complete the measures after a one-week reply period, they received a first reminder notice and then a second notice three days later, if necessary. Participants that failed to complete the questionnaires after a period of two weeks received a telephone reminder. In case participants did not complete the questionnaires they were then withdrawn from the studies. The waiting list group received the intervention after Time 3 to ensure that these participants also benefited from the intervention. Upon the completion of the investigation participants

received a letter informing them of the research findings (see Appendix 7, pp, 185-7). Studies 1, 2, and 3 were conducted in different phases. Study 1 aimed to pilot the questionnaires and to examine the applicability of the intervention program. Further to analysing the results of Study 1, open-ended questions were added at Time 3 for studies 2 and 3 to assess participants' views of intervention impact.

6. Intervention (Acceptance and Commitment Training)

6.1. Overview

The ACT one-day intervention was manualised to assure consistent delivery. The program development was heavily based on ACT's seminal text by Hayes et al. (1999) whilst the selection of exercises and the order by which they were delivered was influenced by ACT worksite interventions developed by Bond and Hayes (2002) and Flaxman and Bond (2006). Specific considerations were drawn from authors exploring the application of ACT in group contexts (i.e., Bond, 2004; Walser & Pistorello, 2004). The researcher attempted to develop a balanced one-day intervention covering all the central aspects of ACT's model such as, mindfulness/acceptance, cognitive defusion, value clarification and committed action. The session consisted of metaphors, experiential exercises (e.g., mindfulness) and value-clarification exercises. During the development phase, the intervention was piloted on two groups of individuals unfamiliar to ACT. The research supervisor observed the pilot sessions and consented to the elements included in the manual. The following two subsections briefly outline the intervention. ACT metaphors are not presented in detail here.

6.2. Morning session

The aims of this session were: (1) to consider how experiential avoidance and internal control are problematic when dealing with thoughts and emotions (2) to introduce mindfulness as an alternative (3) to present the concept of values and complete a value clarification exercise.

The session begins with introductions. The trainer outlines the confidentiality requirements and tells participants that they may share thoughts or experiences if they feel comfortable. The trainer then explores participants' expectations and presents a summary of the intervention making a tentative distinction between peoples' internal world (e.g., thoughts, feelings, and physical sensations) and peoples' external world (e.g., behavioural responses). Based on this distinction the trainer introduces mindfulness/acceptance as a skill that is closely related to internal experiences and value clarification as a skill related to external

reality and behaviour. This simplified presentation is used to develop a concrete overview of the session.

The trainer then proceeds by stating *"this training will teach you how to work through your psychological barriers to effective living"* and participants are encouraged to reflect on "what effectiveness means to them" and to indicate how effectiveness is related to engaging with meaningful actions. Participants are then asked to (1) give examples of psychological barriers, (2) to reflect on how psychological barriers interfere with effectiveness and to (3) outline strategies that participants have used to get rid of psychological barriers in the past. The trainer then leads the discussion in exploring the effectiveness of these strategies. Particular emphasis is placed on strategies that involve avoidance (e.g., suppression, procrastination, or situational avoidance) as a method for reducing the impact of uncomfortable emotional or cognitive experiences (e.g., anxiety, stress, or negative thoughts). The trainer presents the idea that 'control' strategies are sometimes ineffective in the 'internal world'. This concept is presented through various methods (1) the trainer makes the distinction between our ability to manipulate our surroundings (e.g., manipulation of our environment) and our apparent inability to extinguish uncomfortable internal experiences (e.g., *"is it not the case that when you try to stop thinking about something you end up thinking about it more?").* (2) The trainer introduces a suppression exercise to experiment with this concept. For instance participants are instructed to STOP thinking of a warm chocolate cake (Hayes et al., 1999, p. 124). (3) The *polygraph metaphor* is introduced to demonstrate how increased motivation to control one's internal experiences can result in a paradoxical increase of unwanted emotions (Hayes et al., 1999, pp. 123-124).

Throughout this phase the trainer attempts to maintain an exploratory stance where participants are not given the 'right answer' but are encouraged to reflect on their own experience and how control has worked for them (e.g., *"don't take my word for it, look at your own experience"*). Hayes et al. (1999) refer to this phase as *'creative hopelessness'* where an individual realises the ineffectiveness of previously endorsed avoidance strategies. According to Bond and Hayes (2002) this is a useful position as an individual may become ready to experiment with alternative models, such as acceptance and mindfulness.

At this stage the trainer proceeds with an 'internal struggle' analogy indicating that the more we try to remove internal experiences the more we focus on them becoming drained in the

process. To illustrate this point the trainer uses a 'clean/dirty discomfort' metaphor (Hayes et al., 1999, 136). Mindfulness is then introduced as an alternative to internal struggles. It is presented as a position from which one can notice internal experiences without engaging in attempts to change or remove thoughts or feelings. Mindfulness is presented alongside the concept of developing *willingness* to feel both comfortable and uncomfortable internal experiences. The trainer then introduces the first mindfulness exercise (the white screen; Flaxman & Bond, 2006). Participants are instructed to notice their natural stream of thoughts and feelings projected on an imagined screen without trying to manipulate, control, or remove them. Participants are encouraged to make a distinction between being drawn into a thought (being "fused" with the content on the screen) and standing back and observing it like an audience member. The trainer then leads a discussion around the exercise.

The next phase of the training introduced the concept of values in contrast to goals. Values are presented as general life directions, like the process of living rather than a specific destination (a goal). To illustrate the difference the trainer said *"a value is like going east, a goal is arriving to China, while an action is buying the ticket to get there"* (Hayes & Smith, 2005, p. 161). The trainer gives specific examples (e.g., being a loving daughter) and encourages participants to reflect on their own chosen values and their resulting goals on a written exercise (see Appendix 8, p. 188). Upon the completion of the exercise the trainer explores participants' experience and guides a discussion to how certain attempts to control uncomfortable internal experiences can side-track us from a value-based living. The morning session ends with a second mindfulness exercise (Mindful Breathing; Williams, Teasdale, Segal, & Kabat-Zinn, 2007).

6.3. Afternoon session

The aims of the afternoon session were: (1) to introduce additional mindfulness and defusion exercises, (2) to contact 'the observing self' as a context for experiencing different thoughts and feelings, (3) to further reflect on values and to strengthen the link between value-consistent actions and mindfulness (Flaxman & Bond, 2006).

At this stage the trainer aims to emphasise the difference between cognitive "fusion" (being drawn into the content of your thoughts) and cognitive "defusion" (stepping back to see thoughts for what they are). Participants are encouraged to engage with the experiential exercise 'taking your mind for a walk' (Hayes et al., 1999, pp. 162-163). This exercise is

presented as an analogy where participants learn that it is possible to move towards valued directions whilst their 'minds' continuously operate trying to influence their choices. Often "mind chatter" is compared to a radio that is constantly playing in the background. At this point the trainer parallels thoughts to cognitive tools (Hayes & Smith, 2005, pp. 69-70) to encourage participants to examine thoughts in terms of their workability rather than their emotional impact (e.g., *"is this a thought that will help you construct a valued life or is this thought that is holding you back?"*). This analogy further emphasises the process of cognitive defusion and the stance of looking *at* one's thoughts instead of *from* one's thoughts (Hayes & Smith, 2005, p. 70).

The idea of the "observing self" as a context for thoughts and emotions is introduced by exploring one's ability to be aware of a variety of internal experiences simultaneously (e.g., *"who is aware of all your thoughts, physical sensations, and emotions?"*). If there was time, this discussion is followed up by the observer exercise (Bond & Hayes, 2002), an exercise that encourages participants to notice that they are more than the content of their internal world and that these experiences can be contained through mindfulness and contact with the present moment. Upon completing this exercise the trainer uses the 'chessboard metaphor' (Hayes et al., 1999, pp. 190-192) to make a distinction between the observing self and different aspects of one's experience (e.g., anxiety, happiness, good and bad memories). A real chessboard and pieces are used to present this metaphor. Participants are asked to notice how sometimes we get caught up at 'piece level' trying to remove uncomfortable experiences. The trainer indicates that mindfulness is similar to having a 'board level' perspective; a position that allows us to contain our thoughts and feelings and invest our energy to moving towards valued directions.

The connection between value-based living and mindfulness is further reinforced by paralleling thoughts and feelings to different colour shades (e.g., a positive thought is analogous to looking through pink shades; Hayes & Smith, 2005). Participants are then asked whether they would like the colour of their shades to define their life direction or whether their values might be a better guide. With this introduction participants are instructed to reflect on the second value exercise (see Appendix 9, p. 189) which requires them to break-down values to specific goals and small actions. The aim is for participants to start thinking of valued actions as an everyday occurrence rather than as a distant concept. They are also asked to notice potential 'psychological barriers'. Whilst discussing the exercise the trainer

emphasizes the concept of being willing to experience 'psychological barriers' if it is in the service of value-based living.

At this stage the trainer aims to summarise the concepts introduced on the day. A 'passengers on a bus' metaphor is introduced to demonstrate that internal barriers can interfere with value-based living and to emphasise that willingness can help us move in valued directions (Hayes at al., 1999, pp. 157-158). At this stage the trainer introduces a final mindfulness exercise (Physicalising thoughts and feelings; Hayes & Smith, 2005). The day ends with questions and comments. If participants are willing, the trainer asks them to state their commitment to a value and to an aligned action (Flaxman & Bond, 2006). Finally, participants are advised to practice the mindfulness skills regularly (daily for at least a month) and are given an audio CD containing a selection of mindfulness exercises. In addition, participants were encouraged to reflect on their values further and are given a handout to accompany the training (see Appendix 10, pp. 190-199).

7. Data Collection

7.1. Overview

Participants across studies completed a battery of questionnaires administered through a computerised, internet delivery system (surveymonkey.com). Participants were emailed a link to the internet site at an appropriate time and could access the questionnaires on their personal computer. Copies of the questionnaires can be found in Appendix 11 (pp. 200-207). During Studies 2 and 3 participants in the intervention group answered five open-ended survey questions about the intervention.

7.2. Outcome Measures

Depression Anxiety Stress Scales (DASS-21). The DASS is a self-administered measure that consists of three scales each designed to measure depression, anxiety, and stress (Lovibond & Lovibond, 1995). The measure has good reliability for both clinical and non-clinical populations and has adequate convergent and discriminant validity (e.g., Brown, Chorpita, Korotitsh, & Barlow, 1997; Crawford & Henry, 2003). The scales can be administered via the Internet (PFA, 2008). DASS-21 is the short version of a 48-item version, has the same factor structure, and produces very similar results (Antony, Bieling, Cox, Enns, & Swinson, 1998). Each scale contains seven items. The respondents are required to indicate the frequency of a variety of symptoms (e.g., *"In the past two weeks ... I found it hard to wind down"*). Participant responses are noted on a 4-point Likert scale (coded from 0-3;

ranging from '*did not apply to me at all*' to '*applied to me very much or most of the time*'). Higher scores indicate more severe depression, anxiety, or stress. Table 3 (p. 63) presents the Cronbach alphas for the DASS across time points and studies. The majority of statistics exceed a .70 Cronbach alpha benchmark recommended by Nunnally and Bernstein (1993) indicating good scale reliability. This measure was used in Studies 1, 2 and 3.

Table 3

Cronbach alphas for DASS-21across assessment points for Studies 1, 2 and 3.

		Study 1	Study 2	Study 3
Time 1	Depression	.89	.88	.91
	Anxiety	.74	.70	.70
	Stress	.88	.84	.83
Time 2	Depression	.79	.87	.90
	Anxiety	.75	.74	.64
	Stress	.85	.83	.78
Time 3	Depression	.88	.85	.84
	Anxiety	.86	.82	.80
	Stress	.78	.84	.86

Note. Study 1: time 1, N=61, time 2, N=57, time 3, N=46; Study 2: time 1, N=71, time 2, N=53, time 3, N=45; Study 3: time 1, N=58, time 2, N=51, time 3, N=51.

General Health Questionnaire-12. The GHQ-12 is a self-report questionnaire that measures psychological well being (Goldberg & Williams, 1991). This project used the GHQ-12, a short version of this measure, as it is quick to administer and has been used in previous ACT investigations in organisational settings (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006). Wijndaele et al. (2007) examined the reliability equivalence for a version of the GHQ-12 administered online. The researchers reported good internal consistency (.79) and test-retest reliability (.75). The GHQ-12 is sensitive to short-term psychological changes being appropriate for detecting the effects of an intervention (Nerdrum, Rustoen, & Ronnestad, 2006). In the present investigation the GHQ-12 was interpreted as one-factor (general psychological well being) as this approach is better supported in research (Hankins, 2008). Participants are asked to complete a series of items that address symptoms of psychological distress (e.g., *"Over the past four weeks ... I have been able to concentrate on what I was doing"*). Responses to this measure are answered on a 4-point Likert scale (codes of 0-3; e.g., *better than usual* to *much less than usual*). Higher scores on the GHQ-12 reflect greater psychological distress. The GHQ-12 was administered in Studies 2 and 3 to

complement the DASS. Chronbach alphas for Study 2 were .90, .92, .93 across time points and .93, .92, and .91 across measurements in Study 3.

7.3. Mediation Measures

Acceptance and Action Questionnaire (AAQ-II). The AAQ II is a measure of psychological flexibility (Bond et al., submitted). This revised version of AAQ, consists of ten items and it has been constructed to reflect the different aspects of ACT's psychotherapeutic model (Bond et al., submitted). The psychometric properties of the AAQ-II have been examined in six preliminary investigations with sample sizes ranging from 206 to 854. The measure has shown good internal reliability of .81-.87 and reflects a one-factor solution that explains 40% to 46% of the variance (Bond et al., submitted). It has shown good criterion validity as it correlates well with other measures such as the DASS (-.60), the BDI-II (-.75), and the GHQ (-.31). These correlations agree with an ACT model of psychopathology in that higher levels of psychological flexibility are associated with better psychological outcomes (Hayes et al., 2006). The AAQ-II consists of questions such as *"It is ok to remember something unpleasant"*. It is scored on a seven-point Likert scale so that the answer to each question ranges between "never true" to "always true". It is scored so that higher scores indicate greater psychological flexibility. The previous version (AAQ-I) has been used extensively as a mediation measure however the current version (AAQ-II) has yet to be tested thoroughly as a process measure though it is recommended as having better psychometric properties. Table 4 (p. 64) shows the Chronbach alphas for each study across time points.

Table 4

Cronbach alphas for AAQ-II in Studies 1, 2 and 3.

	Study 1	Study 2	Study 3
Time 1	.89	.82	.73
Time 2	.88	.82	.81
Time 3	.88	.90	.79

Note. Study 1: time 1, *N*=61, time 2, *N*=57, time 3, *N*=46; Study 2: time 1, *N*=71, time 2, *N*=53, time 3, *N*=45; Study 3: time 1, *N*=58, time 2, *N*=51, time 3, *N*=51.

Behavioural Activation for Depression Scale (BADS). The BADS is an instrument designed to assess reductions in behavioural avoidance that are assumed to be responsible for therapeutic change (Kanter, Mulick, Busch, Berlin, & Martell, 2006). The BADS is not a specific ACT process measure and has been developed according to a Behavioural Activation

(BA) treatment model (Martell, Addis, & Jacobson, 2001). However, both therapies include behavioural activation in their theory although ACT places emphasis on the importance of values. The BADS has four subscales measuring activation, avoidance/rumination, work/school impairment, and a social impairment subscale. The activation subscale measures engagement with activities that are in service of a long-term direction or goal (Kanter et al., 2006). The respondent is instructed to *"read the statements carefully and to circle the number which best describes how much the statement was true during the past week"*. The measures include questions such as *"I did something that was hard to do but was worth it"*. Higher scores indicate greater activation. The activation scale of the BADS has shown acceptable internal consistency (.87-.85) and test-retest reliability (.60) in two non-clinical U.S. student samples (Kanter et al., 2006). In addition the whole scale has shown good construct validity in the expected directions with the BDI (-.70) and Acceptance and Action questionnaire (-.51; an ACT measure). This scale was introduced in Study 1 to explore its utility as a process measure of committed action. The scale demonstrated good internal consistency in this study (.88, .82, .89 at time 1, 2 and 3 respectively). However, this activation scale did not emerge as a useful process measure in Study 1 and was dropped in subsequent studies.

Automatic Thoughts Questionnaire - Believability (ATQ-B). The ATQ-B is a 30-item measure addressing the believability of individuals' negative automatic thoughts (Zettle & Hayes, 1986). The ATQ was originally developed by Hollon and Kendall (1981) as a measure of negative automatic thoughts and was adapted by Zettle and Hayes (1986) into an ACT process measure by adding a thought believability rating scale. The ATQ-B has been used as a measure of cognitive defusion in previous studies (e.g., Back & Hayes, 2002). Netemeyer et al. (2002) developed a shortened version of the standard ATQ consisting of 15 items. The psychometric qualities of this measure were examined in four separate studies with different populations (N= 1112). Internal consistency for this measure ranged from .92 to .96, whilst it had appropriate construct validity and high correlation with the longer version. In the present study, Netemeyer et al.'s 15-item ATQ was adapted by adding a believability scale based on Zettle and Hayes's guideline (1986). The questionnaire consisted of 15 statements indicating negative thinking (e.g., *"I'm no good"*). Participants were instructed to indicate how often they experienced these thoughts on a five-point Likert scale (i.e., *"not at all"* to *"all the time"*) and to what extend they believed these statements (i.e., *"not at all"* to *"totally"*). The present study aimed to pilot this questionnaire as a process

measure of cognitive defusion. The questionnaire showed high internal consistency (Cronbach alphas for the ATQ frequency scale were .92, .93, and .95 across the three time points and Chronbach alphas for the ATQ believability scale were .95 at time 1, .94 at time 2, and .96 at time 3). After analysing the resulting data in Study 1, there were concerns with regards to the construct validity of this measure and was therefore dropped in subsequent studies.

White Bear Suppression Inventory (WBSI). The WBSI is a 15-item questionnaire which measures thought suppression (Wegner & Zanakos, 1994). The WBSI has been included in a collection of questionnaires of potential relevance as process measures for ACT by Ciarrochi and Bilich (2006). It consists of questions such as *"Sometimes I wonder why I have the thoughts I do"* and the responses range from *"strongly disagree"* to *"strongly agree"*, on a five-point Likert scale. Higher scores on the WBSI indicate higher levels of thought suppression (maximum of 75). According to Wegner and Zanakos (1994) the mean score of the scale is 47.7 for women and 45.8 for men (standard deviation of 10). The WBSI has demonstrated good internal consistency (alpha .87-.89) when administered to an undergraduate student sample and good test – retest reliability, .92 (1 week) and .69 (after three months; Wegner & Zanakos, 1994). This measure has also demonstrated appropriate convergent validity as it correlates with the Beck Depression Inventory, the State and Trait Anxiety Inventory and the Maudsley Obsessive Compulsive Inventory (Wegner & Zanakos, 1994). In this project this measure was used in Studies 2 and 3. Chronbach alphas for Study 2 were .85, .86 and .91 across time points and .86, .90, and .87 across assessment points for Study 3.

Freiburg Mindfulness Inventory (FMI). The 14-item FMI was developed by Walach, Buchheld, Buttenmuller, Kleinknecht, and Schmidt (2006). The measure is constructed to measure mindfulness, defined as the acceptance of experience and as having a non-judgemental stance. The original 30-item questionnaire was developed with a sample size of 115 participants attending Vipassana mindfulness retreats (Buchheld, Grossman, & Walach, 2001). Walach et al. (2006) conducted a second study to validate the instrument, replicate its psychometric properties, and develop a short version. The sample included 85 participants from mindfulness retreats, 85 participants drawn from the general population and 117 participants drawn from a clinical population. The psychometric quality of the resulting form was appropriate. The measure showed good internal consistency (.86), and good construct

validity as it correlated as expected to other measures such as the self-awareness scale (SAM) and the Dissociative Experiences Scale (DES; Walach et al., 2006). The short-form showed excellent correlation to the 30-item version (.95). The 14-item FMI was developed so as to be semantically independent from a Buddhist meditation context and can be used as a measure of mindfulness in the general population (Walach et al., 2006). The instructions were as follows *"Please use the last two weeks to consider each item and provide an answer for every statement as best as you can."* The questionnaire contained questions such as *"I am open to the experience of the present moment."* This measure was scored on a four-point Likert scale and the response options ranged from *"rarely"* to *"almost always"* where higher scores indicate higher levels of mindfulness. The measure has not been used in a previous investigation as a specific ACT process measure, however, since ACT utilizes mindfulness as a therapeutic intervention it is hypothesized that this measure might operate as a process variable. The FMI was used in Studies 2 and 3. Chronbach alphas for Study 2 were .82, .80, and .84 across the three time points and .86, .90, and .89 respectively for Study 3.

Participant Feedback. Participants in the intervention group across studies had the opportunity to leave written feedback about the intervention. The aim of collecting participant feedback was to conduct a content analysis to supplement results from the questionnaire data. In Study 1 leaving feedback was spontaneous whilst in Studies 2 and 3 participants were prompted to answer five open-ended survey questions included to facilitate this process. Participants were required to write their feedback on the online questionnaire completion software after completing the final assessment two months post intervention. The questions added in Studies 2 and 3 were:

1) What was your experience of the training?

2) What impact did any of the skills introduced here have afterwards both generally or in specific situations?

3) In what ways did you practice the skills/exercises introduced in the training?

4) What factors influenced whether you practiced the skills/exercises introduced in the training?

5) If you had organised the training what would you have done differently?

8. Data Analysis

8.1. Statistical Power

Statistical power is the probability that a statistical test will evidence an effect when the effect exists in the sample (Field, 2006). In other words, it refers to the relationship between Type I (α) and Type II (β) statistical error. Statistical power depends on sample size, the type of statistical test used, and the effect size of the intervention (Howell, 2002b). In order to achieve adequate statistical power to detect an effect one needs to make certain decisions at the design stage of a study. This procedure involves taking into account the expected effect size of the intervention, deciding on the statistical test that will be used, choosing the preferred α- and β-levels, and finally calculating and attempting to achieve an adequate sample size. In this study a priori statistical power was calculated using the statistical computer program G*Power 3 (Faul, Erdfelder, Lang & Buchner, 2007). The α-level was set at .05 with an expected medium effect size (f= .25). A medium effect size was chosen based on published effect sizes in similar studies (Bond & Bunce, 2000; Flaxman & Bond, 2006). According to calculations a sample size of 86 in each study would produce power of .80 for a medium effect size. This is consistent with Cohen's (1988) recommended power in behavioural research. Two additional factors were taken into consideration. The sample variance in preventive interventions can be large and may reduce the effect size (Bunce & Stephenson, 2000) while attrition needs to be accounted (Bunce & West, 1996). Thus it was intended to recruit more than 80 participants in each study to account for these variables. Unfortunately, the recruitment flow across studies did not meet expectations and the studies resulted with smaller sample sizes. The implications of the resulting sample sizes are explored in discussion sections.

8.2. Preliminary Analyses

Baseline analyses. Statistical analyses were conducted with SPSS version 15.0. To test the hypothesis that the randomisation procedure was successful independent sample t-tests were conducted on outcome and mediation variables completed at baseline. In addition, to test the null hypothesis that participants that completed the study were similar to participants that withdrew from the study independent sample t-tests were conducted on the battery of measures complete at baseline. Participants that withdrew prior to completing the first battery of measures were not included in this analysis due to lack of data. In order to ascertain the validity of the scales used in the two studies, Yaffee (1996) recommended conducting

bivariate correlations using the Pearson product-moment correlation (r) to explore the relationships between variables and to ascertain whether the correlations were consistent with the underlying theory and research hypotheses.

Missing data. Multiple cases of missing data can increase the possibility of Type II statistical error (Bunce & West, 1996). To reduce the likelihood of missing data, the present studies adhered to the following procedures: (1) the online software that hosted the questionnaire completion required participants to complete at least 80% of each scale before submitting their responses, (2) where a participant failed to complete a scale they were contacted and reminded to complete it, (3) in case the participant did not complete the scale or if the time frame for measure completion had lapsed, then the participant was included in the analysis up to the last available data collection point. (4) In case a participant failed to complete more than two scales during an assessment phase listwise deletion was conducted. (5) In the case of participants that missed a small number of items (<20%) within a scale, the missing value was replaced with the mean of the participant's responses on the items of the same scale.

Examining parametric assumptions. The assumption of normal distribution was examined through inspection of normality plots and by conducting a Kolmogorov-Smirnov (K-S) test in all studies. Some deviations from normality were observed on certain measures across studies. Appendix 12 (pp. 208-209) presents the K-S results for variables that indicated deviations from normality on certain time points. The deviations from normality indicated a positive skew, which is common in non-clinical populations especially on the DASS-21 (Henry & Crawford, 2005). Transformations were conducted on non-normally distributed scales in an attempt to correct deviations (i.e., logarithmic transformation, square root transformation) however, in most cases they failed to correct the problems and were not utilised. Where transformations were used this is mentioned in the results section.

Violations of parametric assumptions, as found in the present data can result in a loss of power (Sawilowsky, 1993). An alternative is using a non-parametric test for analysing randomised controlled trials such as the Mann-Whitney test. However, Maxwell, Delaney, and O'Callaghan (1993) state that the question of whether to use a parametric or non-parametric test is complex since in some cases parametric techniques may be more powerful even with assumption violation. Moreover, Monte Carlo studies suggest that parametric

procedures such as analysis of covariance are robust even in cases of assumption violation (e.g., Glass, Peckham, & Sanders, 1972). In a simulation study aiming to compare the relative efficacy of ANCOVA and its non-parametric equivalent (Mann-Whitney) for non-normally distributed data in randomised controlled trials, Vickers (2005) found that ANCOVA is more powerful. The present investigations followed Vickers (2005) recommendation, given that the project draws heavily on analyses of covariance.

To test for homogeneity of variances Levene tests were conducted in all studies and for all variables. For the majority of variables the Levene tests emerged as non-significant indicating that the variances were largely homogeneous ($p > .05$). However on certain scales the Levene test was significant, designating non-homogeneous variances. Where this occurred it is reported in the results section. According to Stevens (1996, p. 249) analysis of variance is reasonably robust with regards to violations of this assumption when the group sample sizes are relatively similar (i.e., largest/smallest = 1.5) and therefore these scales were retained for parametric analyses.

8.3. Main Analyses

The three studies included in this thesis utilised similar statistical methodology although there were differences in the measures used in Study 1 in comparison to Studies 2 and 3. These differences are made explicit in the measures subsection (pp. 62-66). In order to test the hypothesis that ACT resulted in improved main outcomes, repeated measures analyses of variance were conducted on outcome variables with condition as a between-subject factor (ACT vs waiting list) and Time as a within-subject factor (levels: Time 1 [baseline], Time 2 [one month], and Time 3 [two months]). Effect sizes in eta squared [η^2] are presented alongside the significance value. According to Cohen (1988) eta squared values of .01, .06, and .14 indicate small, moderate, and large effect size respectively. In Study 1 repeated measure ANOVAs were conducted on the three scales of the DASS whilst in Studies 2 and 3 repeated measure ANOVAs were conducted on the DASS and on the GHQ-12. The ANOVAs were followed-up by individual analyses of covariance (ANCOVAs) for Time 2 and Time 3 controlling for the effect of Time 1 as a covariate. A Bonferroni adjustment was used in these analyses to reduce the probability of Type I error. Two simple effect tests (for time 2 & time 3) were conducted for each scale ($a/2$) and therefore the significance value was set at $p \leq .025$. Cohen's d effect sizes were calculated for between-group effects at time 2 and time 3 to facilitate interpretation. Cohen's d was calculated for the standardised mean

difference between groups post intervention to protect against history effects (Wilson, Becker, & Tinker, 1995). In order to account for mean differences at baseline, Cohen's *d* was calculated on the adjusted means throughout these studies. See Appendix 13 (p. 210) for formula. Cohen's benchmarks for *d* are .2, .5, and .8, for small, medium, and large respectively

8.4. Mediation Analyses

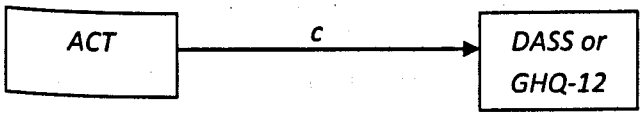
Baron and Kenny (1986) stated that a variable acts as a mediator when we can demonstrate that a previously significant relationship between an independent variable and a dependent variable is reduced in strength or becomes zero when we enter this third variable into the equation. According to Kenny (2009) one can conclude that there is full mediation if the relationship between the independent variable and the dependent variable approximates zero after accounting for the mediator variable. Alternatively, if this relationship is reduced but remains significant we have partial mediation (Kenny, 2009). The mediation hypothesis in the present studies predicted that an ACT intervention would evidence increased mental health on the main outcome measures (e.g., GHQ-12 and/or the DASS) and that this change would occur via changes in theoretically congruent process variables. Figure 2 (p. 72) shows the direct effect model, the hypothesised mediation model for Study 1 and the proposed mediation model for Studies 2 and 3. All studies are conceptualising multiple mediation models, where each process is theoretically viable to impact on the dependent variable. Preacher and Hayes (2008) stated that multiple mediation models are advantageous since by including more than one mediator, one has the flexibility of testing various aspects of a theory within a single model.

The most widely used mediation method is the 'causal steps approach' described by Baron and Kenny (1986) and Judd and Kenny (1981). However, MacKinnon et al. (2002) note that the 'causal steps approach' can increase the probability of Type II error in small sample sizes. An alternative method coined as the bootstrapping technique has been proposed by Preacher and Hayes (2008) and endorsed by MacKinnon et al. (2002). This method has demonstrated better power in comparison to the traditional 'causal steps approach', has adequate control over Type I error, and is appropriate for small sample sizes (MacKinnon et al., 2004). Bootstrapping is a nonparametric test that runs thousands of regression analyses on subsets of the original data and it is not contingent on the assumption of multivariate normality (Jose, 2008). Preacher and Hayes (2008) have developed an SPSS script to conduct this analysis.

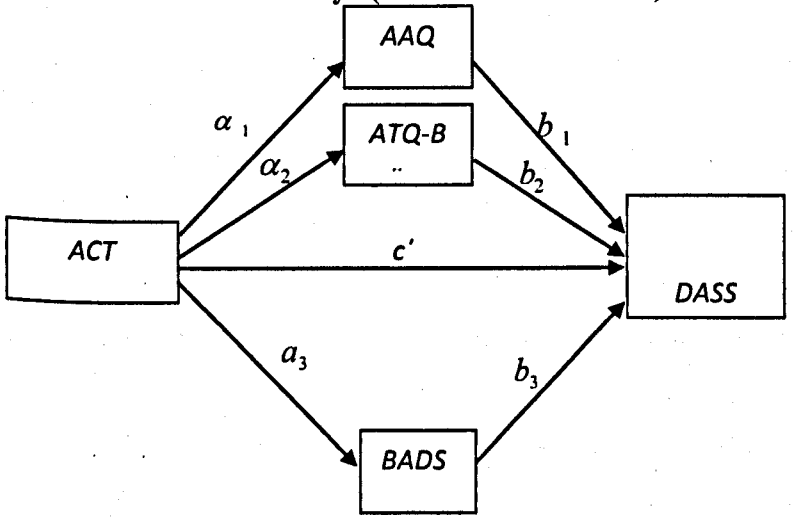
The present study will utilise this technique. Preacher and Hayes (2008, p. 882) propose that an investigation of multiple mediators should involve two stages: (1) establishing the total mediation effect (also known as the indirect effect [αb]) or testing whether the set of proposed mediators accounts for a significant portion of variance of the effect of the independent variable on the dependent variable. (2) Conducting analyses on each individual mediator to identify the specific indirect effect. Preacher and Hayes (2008) emphasize that a significant overall effect is not a prerequisite for moving on to the second stage of analysis.

Figure 2. Hypothesised mediation models for Studies 1, 2, and 3.

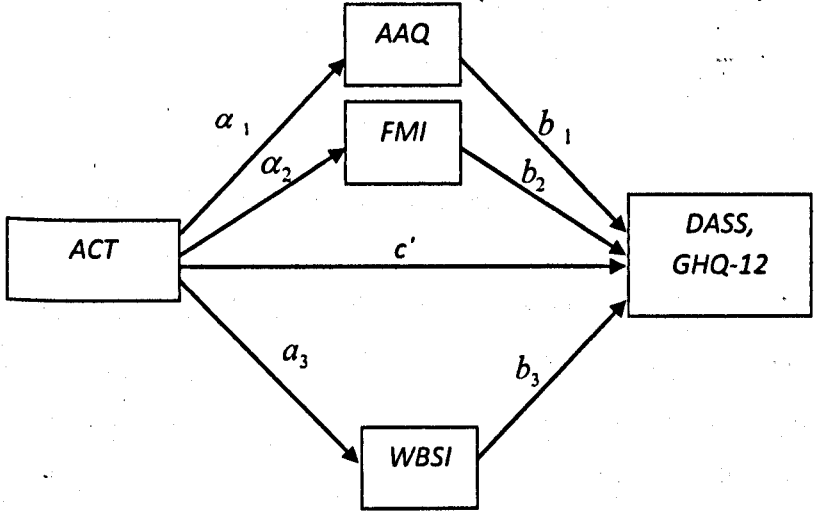
1. Direct Effect



2. Indirect Effect for Study 1(three mediator model)



3. Indirect Effect for Studies 2 and 3 (three mediator model)



Note. ACT: acceptance and commitment training; AAQ: psychological flexibility; ATQ-B: automatic thought believability; BADS: behavioral activation scale; FMI: Freiburg mindfulness inventory; WBSI: white bear suppression inventory; DASS: depression, anxiety and stress scales; GHQ-12: general health questionnaire.

8.5. Content Analysis

Content analysis is a versatile method often used alongside other research paradigms (White & Marsh, 2006). Krippendorff (2004) defines content analysis as a "research technique for making replicable and valid inferences from texts (or other meaningful matter) to contexts of their use" (p. 18). White and Marsh (2006) note that the notion of making 'inferences' from the text is a key concept, suggesting that the researcher uses analytical constructs to answer the research questions. Although certain authors make a clear distinction between quantitative and qualitative content analysis (e.g., White & Marsh, 2006), other authors claim that there are central similarities in the two approaches (Krippendorff, 2004). Given the type of data available in this investigation it was considered that deeper-level inferences that can be drawn from survey-type data may be limited. Nevertheless, the researcher also acknowledges Graneheim and Lundman's (2004) observation that analysing a text always involves a degree of interpretation. This project followed the content analysis guidelines outlined by White and Marsh (2006). Namely, (1) establish hypothesis or hypotheses, (2) identify appropriate data (text or other communicative material), (3) determine a sampling method and sampling unit, (4) draw sample, (5) establish data collection unit and unit of analysis, (6) establish coding scheme that allows for testing hypothesis, (7) code data, (8) check for reliability of coding and adjust coding process if necessary (9) analyze coded data and (10) write up results.

The data consisted of post intervention communications written by participants in the intervention group from Studies 1, 2, and 3 (data across studies were merged to capitalise on more responses). Communications included written feedback left in comment boxes on the website or electronic responses to open-ended questions introduced in Studies 2 and 3. Each participant's response was treated as a unit of analysis and as such codes in each subcategory were counted once for each participant. A coding scheme was developed aiming to operationalise categories and subcategories for analysis (White & Marsh, 2006). Categories were designed so as to include dissimilar content in accordance to Krippendorff's (1980) guideline of exhaustiveness and mutual exclusivity. In cases where codes did not meet any of the categories they were assigned to a category labelled 'miscellaneous'. According to Krippendorff (2004) categories can be drawn from an existing theory, from previous research or from expert views (p. 173). In the present investigation categories and subcategories were developed based on ACT's model and on information drawn from inspecting spontaneous feedback provided after Study 1. In addition, data were inspected for unexpected notions and where necessary, categories were modified. To enhance the generalisability of the

conclusions the researcher asked a colleague to review the categories and subcategories and calculated inter-rater agreement (Tinsley & Weiss, 2000). During the analysis stage, the researcher summarised the codes that fell within the same category or subcategory and considered how this information best answered the research questions. Where possible, the researcher identified patterns in the data (i.e., themes) to better illuminate the content. Finally, the prevalence of each category is reported in percentages.

9. Ethics

All studies abided by the ethical guidelines for conducting research with human participants outlined by the BPS (BPS, 2004). The investigations received ethical approval from the Department of Psychology, City University in 2007.

Participants that volunteered across studies were fully informed of the purpose and procedures of the projects via an information letter (see Appendix 4, p. 180 for Studies 1 & 2; Appendix 6 for Study 3, p.183). Participation was voluntary and contingent on participant consent. Participants expressed their consent by sending an email to the researcher confirming their interest and noting their contact details. The name and role of the researcher was made explicit during the recruitment stage to avoid any ethical implications of recruiting tutors or colleagues. All participants were over 18 and competent to provide informed consent. The confidentiality of participants' personal details was carefully safeguarded. Participants completed all the questionnaires on an online encrypted environment (surveymonkey.com). Whilst completing the questionnaires participants used a research identity that was allocated by the researcher. The key to decipher the research identities was stored at the researcher's home under lock and key. Participant personal details (e.g., name and contact details) were stored on a password protected CD and stored at a safe location. Research data was entered on a statistical package to be analysed without any identifying details. The completed online questionnaire data will be discarded as soon as this research project is finalised. Recordings of the training sessions were also stored on an encrypted environment and are password protected; the recordings will be destroyed upon the completion of the study. Email communications between the researcher and participants were saved on a password protected program and were deleted upon the completion of the study.

Participants were informed of their right to withdraw from the project. All participants, across studies, received the intervention. However, in all studies, half of the participants were randomly assigned to a waiting list condition and therefore received the intervention three months later. The researcher made all reasonable effort to accommodate participants with regards to training dates in both the intervention group and the waiting list group. Given that these studies administered a preventative and not a treatment intervention, the ethical implications for delaying the administration for one of the two conditions were considered minimal. Participants that were interested in receiving one-to-one therapy were advised to arrange formal counselling instead. Appropriate referral procedures are outlined below.

There are certain ethical issues that need to be considered in relation to the group format of these interventions. Participants, in both studies, were allocated in groups of ten to receive the intervention, however, participants were also given the liberty to change groups (i.e., if they felt uncomfortable). This was a rare occasion in both studies. In the student study one participant requested that they were not placed in a group with other students from their cohort and this request was accommodated. In Study 3 three participants requested not to attend the same group as their immediate colleagues to avoid reduced staffing in their department; these requests were also accommodated.

At the beginning of each session, participants were reminded of the importance of keeping the content of the training confidential. Participants were encouraged to adhere to an agreement of not discussing information revealed during the training. Participation was contingent on their agreement with this rule. At the beginning of each training group the researcher emphasized that the intervention did not require participants to share personal information. Participants were informed that sharing information in the group was voluntary. No problems were reported by any participant in the 25 intervention groups conducted across studies. In addition, at the beginning of each session the researcher asked participant permission for recording the session. The researcher clarified that the recordings would be to evaluate the researcher's adherence to the manual. In case a participant appeared uncomfortable with the option of recording the session, the researcher did not pursue this matter. Recordings were conducted for ten groups out of twenty-five.

In case a participant became distressed during a group-session, the trainer would request a short break, address the difficulty, and explain available options (e.g., continue or

discontinue, join another group, referral to a counselling service). However, this did not occur in any of the training groups. The research had pre-experimentally arranged for an appropriate referral procedure to either a counselling service or a private practitioner for both studies (i.e., student counselling service, staff counselling service, a list of Counselling Psychologists in private practice informed of this study). Two participants requested a referral for one-to-one therapy from Studies 1 and 2 after the completion of the study. With these protocols in place the researcher identified no major risk of physical/psychological harm for the participants. Indeed, the foreseeable benefits of completing this investigation outweighed the potential risks. To assure this, towards the end of the training the researcher always allowed time to conduct a debriefing of the session. Upon completion of the study, a letter was sent to all participants explaining the aims and findings of the investigation (Appendix, 7, pp. 185-7).

10. Summary

This chapter described the research methodology utilised in this project and outlined how the research aims were approached by the use of an embedded experimental mixed-method research design. The chapter further outlined the research process with specific emphasis on analytical procedures and ethical considerations.

Chapter 3

Research Results

1. Introduction

This chapter is arranged in four sections. The first section presents the results of the statistical analysis of data collected from Study 1 (student sample). The second section presents the statistical analysis of data collected from Study 2 (student sample) whilst the third section outlines the results of the statistical analysis of data collected from Study 3 (university employee sample). Statistical analyses of questionnaire data are arranged as follows across sections: preliminary analysis, main analysis and mediation analysis. The results of each study are followed by a brief discussion section. The final section presents a content analysis of participants' feedback.

2. Study 1

2.1. Preliminary Analyses.

2.1.1. Attrition.

Attrition occurred either due to participants failing to attend the training or because participants did not complete the online questionnaires at one of the three time points. Figure 3 (p. 79) illustrates participant flow in Study 1. The overall dropout percentage for the intervention group was 20% and for the waiting list group it was 37.14%. Of the six participants that dropped out of the intervention group, two individuals did not attend the training due to conflicting schedules, whilst the remaining four completed the measures at time 2 but not at time 3. With the exception of one individual that did not complete any measures, the attrition percentage for the intervention group from time 1 to time 2 was 3.44%, and from time 2 to time 3 was 14.28%. In the waiting list group, three participants expressed interest in the training but failed to complete the first questionnaire battery. Three additional participants withdrew after time 1 stating that they could not continue due to a heavy workload. Seven more participants withdrew after time 2 without stating a reason. With the exception of three participants that never completed time 1, the attrition percentage for the waiting list from time 1 to time 2 was 9.37%, and from time 2 to time 3 was 24.13%. A chi-square test for independence (with Yates continuity correction) indicated no significant association between group and dropout, $\chi^2(1, n = 61) = .94, p > .05$, phi=-.16 (small effect size). On a small number of occasions participants missed a number of questionnaire items whilst completing the measures. The procedure for treating missing data is outlined in the

Method section (see, p. 68-9). There were 19 missing values across five measures and three time points. An inspection of box-plots for potential outliers did not indicate extreme scores and therefore no cases were removed.

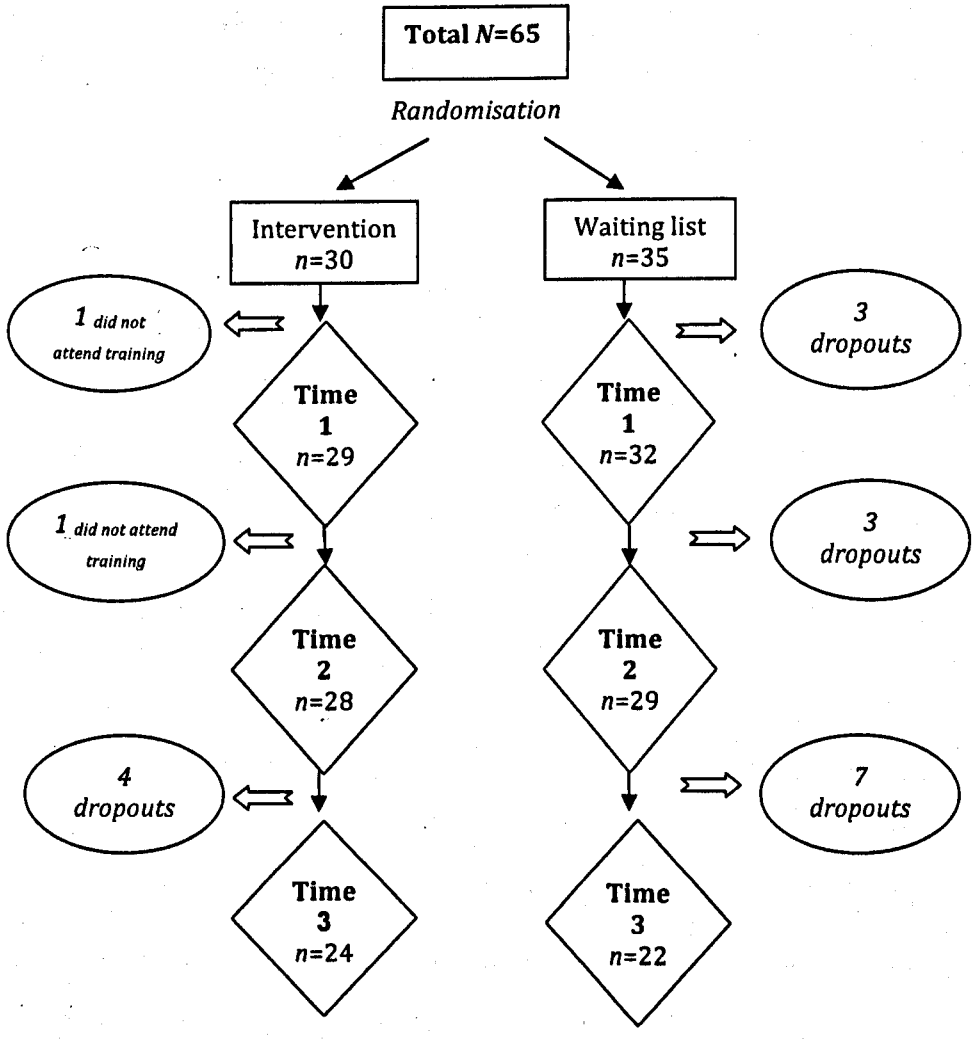


Figure 3. Participant flow in Study 1.

2.1.2. Baseline level of distress and bivariate correlations.

The means, standard deviations, and zero-order bivariate correlations of variables are presented on table 5 (p. 80). The bivariate relationships are generally congruent with the hypotheses since psychological flexibility, frequency of negative automatic thoughts, and believability of negative automatic thoughts were all significantly correlated with depression, anxiety, and stress scales (DASS) in the expected directions. As expected, the behavioural activation scale (BADS) was negatively correlated with depression however it was not significantly correlated with psychological flexibility, rendering its utility as a potential ACT mediator questionable. Automatic thought frequency and automatic thought believability were highly correlated (r = .9). Pallant (2007) argues that a high inter-correlation may

indicate that scales do not reflect clearly distinct constructs. Additionally, collinearity is a problem when it comes to conducting mediation analyses. Preacher and Hayes (2008) recommend dropping one of the highly correlated variables to resolve this issue. It was decided to retain the automatic thought-believability scale, as it was consistent with ACT's model of psychopathology, while automatic thought frequency was dropped from further analyses.

Table 5

Means, Standard Deviations, and Bivariate Correlations in Study 1 at Baseline (Whole sample)

Variable	*M*	*SD*	1	2	3	4	5	6
1. Anxiety	5.51	5.60						
2. Depression	10.52	8.54	.50**					
3. Stress	14.79	9.54	.66**	.60**				
4. Psychological Flexibility	44.73	11.56	-.43**	-.55**	-.51**			
5. Activation	12.53	5.55	-.20	-.49**	-.23	.16		
6. Frequency of negative automatic thoughts	14.57	11.32	.52**	.77**	.67**	-.55**	-.45**	
7. Believability of negative automatic thoughts	16.22	13.11	.44**	.73**	.61**	-.64**	-.48**	.89**

Note. N=61; ** signifies $p < .01$.

Independent samples t-tests revealed no significant differences ($p > .05$) in the means of any of the variables between the intervention and waiting list groups at baseline (e.g., DASS, BADS, AAQ, ATQ-B). Table 6 (p. 81) shows the means, standard deviations, and the significance value for independent samples t-test comparing the conditions at baseline. Based on Lovibond and Lovibond's (1995) cut-off scores for the DASS-21 the mean level of distress for the whole sample (N=61) at baseline indicates normal to mild levels of distress on the three scales.

2.1.3. Normality tests.

The anxiety and depression scales showed deviations from normality at certain time points as did the automatic thought questionnaire-believability (ATQ-B). Appendix 12 (pp. 208-9) presents the K-S results for these variables at time 1, time 2, and time 3. A logarithmic transformation was useful in the case of the ATQ-B and was retained for subsequent analyses.

Table 6

Means, Standard Deviations, and Independent t-test Statistic Comparing Intervention to Waiting List at Time 1 (Study 1).

Variable		M	*SD*	*df*	t	Sig.
Depression	Intervention	10.35	6.64	59	.15	.88
	Waiting list	10.67	10.06			
Anxiety	Intervention	4.97	5.39	59	.72	.47
	Waiting list	6.00	5.79			
Stress	Intervention	13.72	8.32	59	.83	.41
	Waiting list	15.77	10.57			
BADS	Intervention	11.93	5.49	59	.79	.43
	Waiting list	13.07	5.64			
AAQ	Intervention	45.99	12.30	59	-.80	.42
	Waiting list	43.60	10.92			
ATQ-B	Intervention	14.45	10.45	58	1.02	.31
	Waiting list	17.87	15.18			

Note. BADS = Behavioural Activation for Depression Scale, AAQ=Acceptance and Action Questionnaire, ATQ-B=Automatic Thought Questionnaire-Believability; non-significant differences at $p>.05$.

2.1.4. Homogeneity of Variance.

To test for homogeneity of variances Levene tests were conducted. On three scales the Levene test was significant, designating non-homogeneous variances. Specifically, on depression (time 1), $F(1, 59) = 4.40, p < .05$ and on anxiety (time 2), $F(1, 55) = 8.24, p < .01$ and (time 3), $F(1, 44) = 6.23, p < .05$.

2.2. Main outcomes

The depression, anxiety and stress scales (DASS) were used to assess participants' level of distress (higher scores indicate greater psychological distress). To investigate the impact of a one-day ACT intervention over time, mixed design (2X3) analyses of variance (ANOVA) were conducted with group (intervention vs waiting list) as a between-subjects factor, and time (time 1, time 2, and time 3) as a within subjects factor. The ANOVAs were complemented by simple effect tests for time 2 (one month post) and time 3 (two months). Analyses of covariance (ANCOVA) were conducted for each DASS scale, entering participants' responses at baseline as a covariate. The significance value was set at $p \leq .025$ since each scale was entered in an analysis twice (at time 2 and at time 3).

Table 7 (p. 83) presents the interaction statistics of group by time for mixed design ANOVAs (2X3) conducted separately for each DASS scale. A mixed design ANOVA was conducted for the **stress scale.** Mauchly's test indicated a violation of the assumption of sphericity $[x^2(2) = 10.37, p < .05]$. According to Girden (1992) when the estimate of sphericity is larger than .75 it is appropriate to use the Huynh-Feldt correction. In this case, the Huynh-Feldt estimate was $\tilde{\varepsilon} = .87$ for stress. The group by time (time 1, time 2, and time 3) interaction emerged as non-significant, F (1.74, 76.73) = .76, $p>.05$, $\eta^2 = .02$. A simple effect ANCOVA between the two conditions (intervention and waiting list) at time 2 (with time 1 as a covariate) was statistically significant $F(1,54) = 6.29, p < .025$ indicating a lower level of stress for the intervention group in comparison to the waiting list. This effect was not maintained at time 3, $F(1,43) = .2, p > .025$. The between-groups difference calculated in Cohen's d indicated a medium to large effect (.67) at one month post intervention and small effect (.05) at two months post intervention.

A mixed design ANOVA (2X3) conducted on the **anxiety scale** resulted in a non-significant group by time (time 1, time 2, and time 3) interaction using the Huynh-Feldt correction with $F(1.78,78.47) = 7.04, p > .05, \eta^2 = .01$. An ANCOVA on anxiety at time 2 (with time 1 as covariate) emerged as statistically significant, $F(1,54) = 8.14, p < .025$ suggesting a lower level of anxiety for the intervention group at one-month post intervention. This effect was not maintained at time 3, $F(1,43) = .62, p > .025$. Cohen's d effect size for the between-group difference at one month post was medium to large (.78) and at two months post was small (.24). A mixed design ANOVA (2X3) was repeated on the **depression scale** and the interaction effect of group by time was non-significant, $F(2,88) = .56, p > .05, \eta^2 = .01$ with sphericity assumed. Simple comparisons at time 2 for depression (with baseline as a covariate) revealed a significant difference between groups at one month post, $F(1,54) = 5.99, p < .025$, an effect that was not maintained at time 3 $F(1,43) = 3.07, p > .025$. There was a medium to large effect size for the between-group differences at time 2 (.67) and at time 3 (.54).

Table 7

Means, Standard Deviations, and Analyses of Variance (ANOVA) Interaction Statistics for Outcome Variables (Study 1)

	ACT		Control		ANOVA			
	M	*SD*	M	*SD*	Effect[a]	*F* ratio	*df*	η^2
Dass stress								
Time 1	14.00	8.61	17.37	10.50				
Time 2	9.17	7.30	13.81	7.61	GXT (T1 to T2)	1.10	1,55	.02
Time 3	12.17	6.24	14.00	6.24	GXT (T1 to T3)	.45	1,44	.01
					GXT (T1 T2 T3)	.78	2,88	.02
Dass anxiety								
Time 1	4.50	5.01	6.46	5.79				
Time 2	3.20	3.59	6.63	5.70	GXT (T1 to T2)	3.27	1,55	.06
Time 3	4.45	4.05	7.19	9.38	GXT (T1 to T3)	.17	1,44	.01
					GXT (T1 T2 T3)	.43	2,88	.01
Dass depression								
Time 1	9.58	6.30	11.46	10.77				
Time 2	5.50	5.79	8.37	6.84	GXT (T1 to T2)	2.42	1,55	.04
Time 3	5.84	6.14	10.00	8.76	GXT (T1 to T3)	1.04	1,44	.03
					GXT (T1 T2 T3)	.56	2,88	.01

Note. ACT = Acceptance and Commitment Therapy; ANOVA = analysis of variance; G X T = group by time interaction effect; η^2 = eta squared (effect size); [a]main effects are not reported.

2.3. Mediation Analyses

Mixed-design analyses of variance were conducted on all proposed mediators to examine any emergent group by time interaction effects, with group (intervention vs waiting list) as a between-group factor and time as a within subject variable (time 1, time 2, and time 3). These analyses were followed by analyses of covariance for between-group differences at time 2 and time 3 (controlling for time 1) using a Bonferroni correction $(a/2)$ set at $p \leq .025$. The behavioural activation scale resulted in a significant group by time interaction (time 1 to time 2), F (1, 54) =6.03, $p<.05$ with sphericity assumed and to a significant group by time interaction (time 1 to time 3), F (1, 44) = 4.25, $p<.05$ with sphericity assumed. These findings suggest more pronounced activation for the intervention group in comparison to the waiting list over time. Simple effect tests for between-group differences on the activation scale were marginally non-significant at time 2, F (1, 53) = 4.81, $p=.03$ with a medium effect size ($d=.59$) and non-significant at time 3, F (1,43)=2.19, $p>.025$ with small to medium effect size ($d=.44$). Finally, the automatic thought believability scale resulted in a significant group by time interaction (time 1 to time 2), F (1, 53) = 4.26, $p<.05$ suggesting a more notable decrease in the believability of negative automatic thoughts for the intervention group over time. Simple effect tests for between-group differences on the thought believability scale

were marginally non-significant at time 2, F (1,52)=4.76, p=.03 with a medium effect size (d=.58) and non-significant for time 3, F (1,42)=1.65, p>.025 with a small to medium effect size (d=.38). Psychological flexibility did not result in a significant group by time interaction and nor did it result in significant between-group differences in analyses of covariance at time 2, F (1, 53) = 2.02, p>.025, or time 3, F (1, 43) = .09, p>.025. The effect size of between-group differences at time 2 was small to medium however (d= .39) and therefore this scale was retained for further analyses. These analyses are presented in table 8 (p. 84).

Table 8

Means, Standard Deviations, and Analysis of Variance (ANOVA) Interaction Statistics for the Proposed Mediators (Study 1)

	ACT		Control		ANOVA			
	M	*SD*	M	*SD*	Effect[a]	*F* ratio	*df*	η^2
Psychological flexibility (AAQ)								
Time 1	46.37	13.15	42.19	11.24				
Time 2	49.46	10.45	44.96	10.87	GXT (T1 to T2)	.88	1,54	.02
Time 3	50.17	11.22	46.60	10.72	GXT (T1 to T3)	.08	1,44	.01
					GXT (T1 T2 T3)	2.55	2,88	.01
Behavioural Activation (BADS)								
Time 1	11.25	4.97	13.64	5.79				
Time 2	14.63	3.81	14.19	4.70	GXT (T1 to T2)	6.03*	1,54	.09
Time 3	12.38	6.46	11.37	4.61	GXT (T1 to T3)	4.25*	1, 44	.09
					GXT (T1 T2 T3)	2.74	2, 88	.06
Automatic thought Believability (ATQ-B)								
Time 1	1.09	.31	1.16	.39				
Time 2	.85	.49	1.05	.39	GXT (T1 to T2)	4.26*	2, 53	.07
Time 3	.80	.52	1.01	.47	GXT (T1 to T3)	1.60	1. 43	.03
					GXT (T1 T2 T3)	1.19	2, 86	.03

Note. ACT = Acceptance and Commitment Therapy; ANOVA = analysis of variance; G X T = group by time interaction; η^2 = eta squared (effect size); [a]main effects are not reported. *p < .05.

To assess the mediation hypothesis the bootstrapping technique was utilised as described by Preacher and Hayes (2008). Bootstrapping is a non-parametric test that simultaneously examines multiple mediators in the same model. Mediation tests were conducted for all significant main outcome effects (i.e., DASS scales at one month post intervention). The variables proposed as ACT mediators were psychological flexibility, behavioural activation, and automatic thought believability. Psychological flexibility (AAQ) and automatic thought believability (ATQ-B) were significantly correlated with DASS scales (p<.05) and were therefore appropriate as potential mediators. The behavioural activation subscale (BADS)

was significantly correlated with the DASS depression subscale ($p<.05$) and therefore it was only entered in the mediation analysis of this measure. An omnibus multiple mediator test was conducted to examine total mediation; this was followed-up by single mediator analysis. All the analyses were conducted with 2000 bootstrap samples and at 95% confidence intervals. The mediation findings are presented in table 9 (p. 87).

To examine mediation for the **depression scale**, depression (time 2) was entered as a dependent variable, group (intervention vs waiting list) was used as the predictor variable and psychological flexibility (AAQ), automatic thought believability (ATQ-B) and behavioural activation (BADS) were entered as the proposed mediators (with time 1 as a covariate). The omnibus bootstrap results indicated that the total effect of the intervention on depression at time 2 (total effect = -4.86, $p=.00$) reduced when the three proposed mediators were included in the model (direct effect -3.25, $p=.03$). However, the total indirect effect of the proposed mediators on depression (at time 2) was non-significant with a point estimate of -1.61 and a 95% BCa (bias corrected and accelerated) bootstrap confidence interval of -3.86 to .07. Single mediation tests revealed that automatic thought believability did not mediate this relationship with a point estimate of -1.02 and BCa CI of -2.71 to .04. Similarly, psychological flexibility's indirect effect was non-significant with a point estimate of -.57 and BCa CI of -2.04 to .18 and nor was behavioural activation with a point estimate of -.09 and BCa CI of -1.21 to .75.

To examine mediation for the **anxiety scale**, anxiety (time 2) was entered as a dependent variable, group (intervention vs waiting list) was used as the predictor variable and psychological flexibility (AAQ) and automatic thought believability (ATQ-B) were entered at the proposed mediators (time 1 was a covariate). The bootstrap results indicated that the total effect of the intervention on anxiety at time 2 (total effect = -4.46, $p=.00$) was reduced when the two proposed mediators were included in the model (direct effect = -3.51, $p=.01$). The analysis revealed with 95% confidence that the total indirect effect of the proposed mediators partly mediated this relationship with a point estimate of -.94 and a 95% BCa (bias corrected and accelerated) bootstrap confidence interval of -2.44 to -.02. The specific indirect effects for each proposed mediator showed that none of the two mediators had a unique contribution to the model with psychological flexibility having a point estimate of -.46 and BCa CI -1.65 to .06 and automatic thought believability having a point estimate of -.50 and BCa CI of -1.83 to .03. This suggests that the two mediators maybe inter-correlated and thus share variance.

Simple mediation tests indicated that automatic thought believability acted as a partial mediator when entered separately, with a significant indirect effect [point estimate of -.78] and BCa CI of -2.31 to -.03. Psychological flexibility did not emerge as significant single mediator [point estimate of -.53 and BCa CI of -1.79 to .07].

To examine mediation for the **stress scale,** stress at time 2 was entered as the dependent variable, group (intervention vs waiting list) was used as the predictor variable and psychological flexibility (AAQ) and automatic thought believability (ATQ-B) were entered at the proposed mediators (time 1 was entered as a covariate). The bootstrap results of this test indicated that the total effect of the intervention on stress at time 2 (total effect = -5.87, p=.01) reduced when the two proposed mediators were included in the model (direct effect = -3.63, p = .04). The analysis revealed with 95% confidence that the total indirect effect (i.e., the difference between the total effect [c] and the direct effect [c']) of the intervention on stress through the influence of psychological flexibility and thought believability was significant with a point estimate of -2.23 and a 95% BCa (bias corrected and accelerated) bootstrap confidence interval of -4.79 to -.16. The specific indirect effects of each proposed mediator showed that automatic thought believability had a unique contribution to the model with a point estimate of -1.88 and 95% BCa confidence intervals (CI) of -4.34, -.07. This analysis suggests that reductions on stress for ACT group at time 2 were partially mediated primarily by reductions in automatic thought believability. This omnibus test was followed-up by single mediation tests for the two proposed mediators. Automatic thought believability indicated partial mediation by reducing the total effect (total effect = -5.68, p =.01) of the intervention on stress at time 2 to a direct effect of -3.67 (p =.04). The indirect effect for automatic thought believability was significant with a point estimate of -1.98 and BCa CI of -4.39 to -.34. Psychological flexibility did not emerge as a significant single mediator with a point estimate of -.78 and BCa CI of -2.76 to .30.

Table 9

Bootstrapped Point Estimates and Bias-Corrected and -Accelerated (BCa) Confidence Intervals (CIs) for the Total and Single Mediation Effects on Primary Outcomes.

Mediation Test	Variable	Product of coefficients		Bootstrapping BCa 95% CI	
		Point estimate	*SE*	Lower	Upper
	DASS stress (time 2)				
Single Mediation	AAQ	-.78	.78	-2.76	.30
	ATQ-B	-1.98*	1.03	-4.31	-.18
Multiple Mediation	Total	-2.23*	1.17	-4.79	-.16
	-Specific effect AAQ	-.35	.54	-2.08	.28
	-Specific effect ATQ-B	-1.88*	1.07	-4.33	-.07
Single Mediation	**DASS anxiety (time 2)**				
	AAQ	-.53	.46	-1.78	.07
	ATQ-B	-.78*	.55	-2.21	-.03
Multiple Mediation	Total	-.94*	.61	-2.43	-.02
	-Specific effect AAQ	-.45	.42	-1.65	.06
	-Specific effect ATQ-B	-.49	.47	-1.83	.03
Single Mediation	**DASS depression (time 2)**				
	AAQ	-.57	.59	-2.13	.16
	ATQ-B	-1.02	.73	-2.68	.01
	BADS	-.09	.48	-1.15	.86
Multiple Mediation	Total	-1.61	.99	-3.79	.15
	-Specific effect AAQ	-.26	.41	-1.66	.18
	-Specific effect ATQ-B	-1.09	.84	-3.30	.08
	-Specific effect BADS	-.25	.40	-1.29	.34

Note. $N=55$; AAQ: Psychological flexibility; ATQ-B: Negative automatic thought questionnaire-believability; BADS: Behavioural activation scale; Specific effect: controlling for the effect of the other variables in the model; 2,000 bootstrap samples; * significant at 95% BCa.

2.4. Discussion (Study 1)

Study 1 sought to contribute to the student stress management and ACT prevention literature by examining the effectiveness of a one-day ACT intervention for university students in comparison to a waiting list control group at one and two months follow-up. Secondly, the study also aimed to reveal the mechanisms by which an ACT intervention emanates its effects by conducting mediation analyses. With regards to the mediation question, the study

intended to explore the combined and differential mediating effects of selected ACT processes (i.e., defusion, committed action, psychological flexibility).

The results supported the main outcome hypothesis to a degree. Specifically, an ACT intervention did not result in significant group by time interactions on the main outcome variables. However, the pattern of results indicated more pronounced improvement on mental health variables (depression, anxiety, and stress) at one month for the intervention group, though this effect was not maintained at two-months. It is noteworthy that the effect sizes for between-group differences at one-month were medium to large thus emphasizing the significance of this result. The present findings are modest in comparison to previous investigations that administered a preventative ACT intervention in the workplace and in schools and reported benefits that were maintained at follow-up (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006; Livheim, 2004). Equally, the present results are less pronounced that those reported by studies administering ACT as a one-day intervention for reducing burnout or promoting effective practice of substance abuse counsellors which reported differential benefits for the intervention group at three-months post (e.g., Hayes et al., 2004; Pierson et al., 2004; Varra et al., 2004). It is essential to reflect on possible reasons underpinning the present findings.

One can conceptualise several reasons for which the results of the present study did not reflect the trends in the literature. The majority of considerations are presented in a general discussion section, however, some issues are raised here. In contrast to previous studies where a notable percentage of participants reported high distress at baseline (e.g., Flaxman & Bond, 2006), in the present study, participants recorded high levels of mental health at baseline. This may have been problematic in terms of identifying an interaction effect between groups. In fact, at baseline the intervention group recorded slightly better mental health than the waiting list, thus introducing the possibility of a floor effect. Interestingly, when differences at baseline where controlled for, statistical analyses resulted in significant differences between conditions at one month. Indeed, Bunce and Stephenson (2000) noted that participants' low distress at baseline may dilute intervention effects. Another likely reason for the lack of a significant interaction between groups over time was the fact that the waiting list also experienced improvements in mental health throughout time points. This is not an uncommon finding in the stress management literature (e.g., Barkham & Shapiro, 1990; Flaxman & Bond, 2006; Gardner et al., 2005). Agras et al. (1987) mentioned that it

may be related to a regression to the mean or increased expectation of benefit for the waiting list group. Barkham and Shapiro (1990) further proposed that individuals with moderate distress at baseline may experience benefits merely by taking action; that is, showing the initiative to volunteer for the intervention.

One could argue that the between-group differences observed on the main outcomes at one-month may have been due to non-specific factors such as participation in the training or demand characteristics (e.g., Barkham et al., 1993a; Bunce, 2007). Nevertheless, the significant mediation findings in the present study support the argument that the intervention effect was at least in part the result of changes in ACT-consistent variables. In detail, intervention effects on two of the three main outcome variables at one-month (stress and anxiety) were partly mediated by the proposed variables. Specifically, on the stress scale there was evidence of an indirect effect of automatic thought believability when this variable was tested in a single mediator model. This indirect effect was increased when psychological flexibility was entered alongside automatic thought believability in a total mediation model although only automatic thought believability explained unique variance in this model. In another one-day ACT investigation examining mediation, Varra et al. (2008) reported a similar finding since on an outcome variable (i.e., frequency of counsellors recommending pharmacotherapy to clients) only reductions in believability of cognitive barriers had a unique contribution to the total mediation model alongside psychological flexibility. Indeed, it is possible that reduced thought believability may explain unique variance because it hypothetically measures a specific process in comparison to psychological flexibility which is arguably a more general construct. An increase in the total indirect effect when including both processes in the model was also noted by Varra et al. (2008).

The mediation results were slightly different for the anxiety scale. Automatic thought believability showed evidence of an indirect effect when tested in a single mediator model, however, in a significant multiple mediation model including automatic thought believability and psychological flexibility none of the two variables explained unique variance. Preacher and Hayes (2008) state that this may occur when the variables are highly inter-correlated thus measuring similar constructs. Indeed an extent of overlap was expected since automatic thought believability is hypothesized to reflect the construct of defusion which is theoretically an element of psychological flexibility (Hayes et al., 2006). Moreover, there is evidence of some discrepancy in the mediation findings across outcomes in the present study. A possible

explanation may be that contrary to the stress scale where mediation findings were better-defined, reported levels of anxiety and depression for the intervention group at baseline were low. Thus, it is possible that a combination of a small sample size and elevated mental health for the intervention group at baseline rendered the mediation results inconsistent.

It is important to raise certain considerations with regards to the mediation findings. Specifically, the automatic thought believability scale was initially administered alongside an automatic thought frequency scale which was dropped due to high intercorrelation between scales (r=.9). Arguably, given this high intercorrelation it is difficult to conclude exactly what was being measured by the automatic thought believability scale. Flaxman & Bond (2006) reported similar difficulties in interpreting the effects of an analogous believability scale in an ACT study in the workplace (i.e., dysfunctional attitudes scale). It is necessary to question whether participants observe a conceptual difference between 'having' and 'believing' a thought prior to being introduced to ACT concepts. Furthermore, most ACT studies tend to use a believability scale that is especially designed for the study population rather than a generic one. For example, Gregg (2004) developed a specific believability scale related to diabetes whilst Hayes et al. (2004) used a believability scale related to stigmatising attitudes of substance abuse counsellors. Thus, for reasons of ambiguity this scale was dropped from subsequent studies. Furthermore, the introduction of a behavioural activation scale did not meet study expectations. Even though, it was hypothesized that this scale might be consistent with an ACT perspective it failed to correlate with psychological flexibility and in fact, it only correlated with the depression scale; a finding that was somewhat expected since the scale was developed specifically for measuring changes in depression (Kanter et al., 2006). However, this scale resulted in significant group by time interactions suggesting that behavioural activation increased for the intervention group. Thus, changes in behavioural activation emerged as outcomes rather than as a mediator. This finding is promising and suggests that a brief ACT intervention may have impact on participants' propensity for goal directed action. Nevertheless, it was reasoned that the behavioural activation scale was not suitable to operate as an act mediator and was therefore dropped from subsequent studies.

Study 1 had certain limitations. Firstly, the dropout percentage from both groups was notable. However, it was within the expected range for face-to-face interventions (25-20%; Garfield, 1994; Watkins & Williams, 1998), and well below the dropout percentage reported by other ACT preventative investigations (up to 65%; Flaxman & Bond, 2006). Dropout percentages

in the student management literature vary; however, many studies observe a similar dropout percentage to the present investigation (i.e., 20 – 40%; e.g., Deckro et al., 2002; Kanji et al., 2006). In addition, participants that withdrew from the study did not report higher distress than study completers. It is noteworthy that dropout from the waiting list was higher, possibly due to participants having to wait longer to receive the training. Secondly, although participants were randomised prior to condition allocation, the emergent groups were somewhat unequal at baseline (though this difference was not statistically significant). Such imbalances across conditions are not rare when randomisation is done for small numbers of participants (Rosenberger & Lachin, 2002). Further considerations are discussed in a general discussion section.

In conclusion, it is notable that the intervention effects were short lived suggesting difficulties with effect maintenance. Indeed, the research did not specifically examine whether participants practiced ACT skills post-intervention. The possibility that there might have been difficulties with continuous practice post intervention was introduced by spontaneous feedback delivered by participants. It was therefore deemed appropriate to study participants' impressions of post intervention impact in the subsequent two studies through adding open-ended questions post intervention.

3. Study 2

3.1. Preliminary Analyses.

3.1.1. Attrition

Figure 4 (p. 93) presents participant flow for Study 2 (student sample). On the whole, the intervention group had a 45.71% dropout percentage whilst the waiting list group had a 27.7% dropout percentage. A chi-square test for independence (with Yates continuity correction) indicated no significant association between group and dropout, $\chi^2(1, n = 71) = 1.74, p > .05$, phi=.18 (small effect size).

The dropout percentage for the intervention group includes participants that expressed interest initially but failed to attend the training. For example, in the intervention group, 12 out of the 14 participants that withdrew after time 1 did not attend the training but merely completed the first questionnaire battery emailed to them. This noteworthy early withdrawal from the intervention group can be explained since due to time constraints the training period

coincided with a busy academic period. In addition, due to organisational difficulties the intention of running training sessions during the weekend did not materialise and therefore some individuals had to withdraw from the study. The dropout from the intervention group was more notable since this group had less time to make alternative arrangements. Of the four participants that withdrew after attending the training, one withdrew due to health difficulties, one due to leaving the country, and two did not state a reason. If one takes into account the number of participants that withdrew from the intervention group after attending the training then the dropout percentage from time 1 to time 2 was 8.69% and from time 1 to time 3 was 17.39% (a total of 26.08%). Participants' reasons for withdrawing from the waiting list mainly amounted to issues of conflicting schedules, timing, and health problems. The dropout percentage from time 1 to time 2 for the waiting list was 13.8%.

An independent samples t-test was conducted to compare participants that completed the investigation to those that withdrew on main outcome questionnaires completed at baseline (i.e., on the DASS and the GHQ-12). There were no significant differences in the scores of completers and non-completers. The mean score of completers on depression was (M=11.43, SD=9.10) and for non-completers M=10.27, SD=8.49; $t(69)$= -.54, p>.05 (two tailed). The mean score of completers on anxiety was $M = 8.44, SD = 6.05$ and for non-completers $M = 9.57, SD = 7.27; t(69) = .70, p > .05$ (two tailed), whilst the mean score of completers on stress was $M = 16.28, SD = 9.22$ and for non-completers, $M = 13.91, SD = 8.39; t(69) = -1.08, p > .05$ (two tailed). The mean score of completers on the GHQ was M=15.89, SD=7.34 and for non-completers, M=16.50, SD=6.71; $t(69)$=.35, p>.05 (two tailed).

Some participants missed a small number of items whilst completing the measures. The procedure for treating missing data is outline in the Method section (see, p. 68). In the present investigation there were 29 cases of missing values across five measures and three time points. There was no noticeable pattern of missing data. An inspection of box-plots revealed one case in the intervention group that was a potential outlier (high level of distress). This case did not present as an outlier on all scales and was therefore retained for analysis.

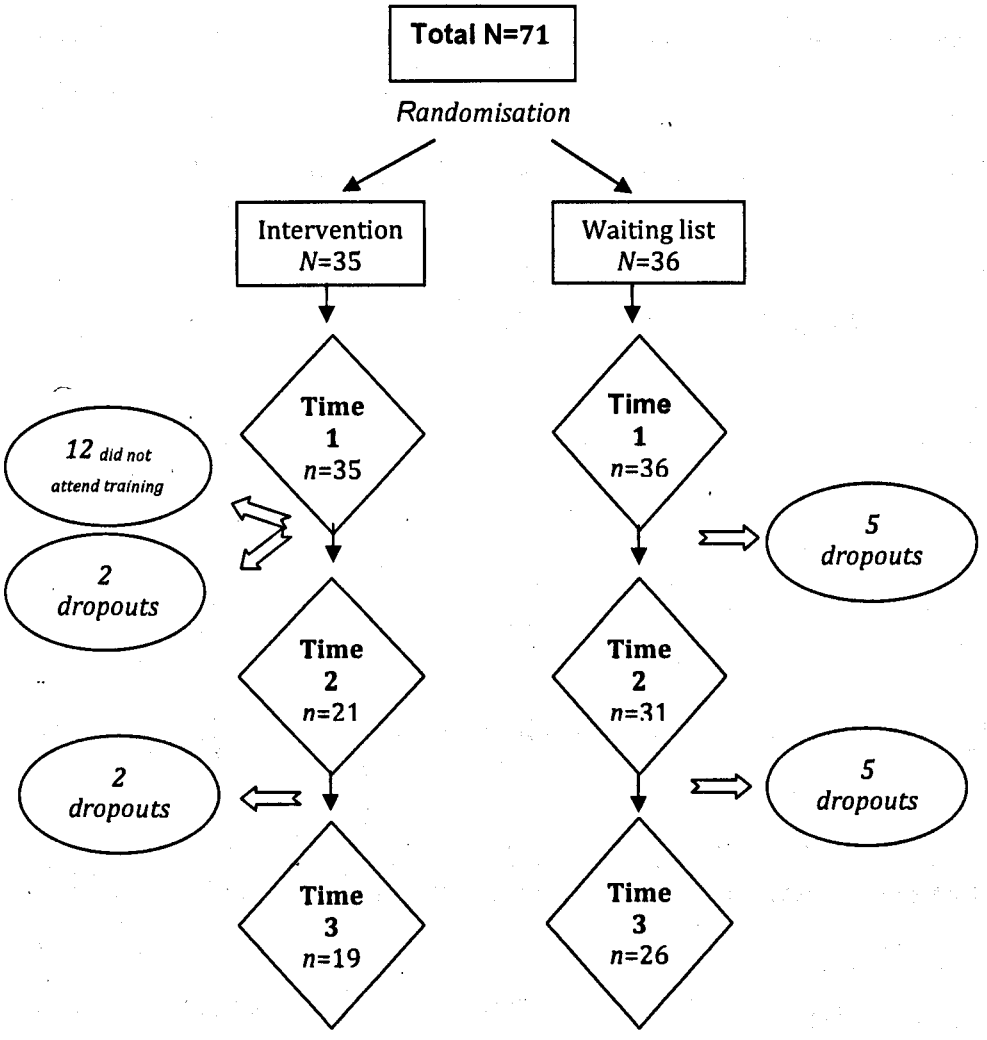


Figure 4. Participant flow in Study 2.

3.1.2. Baseline level of distress and bivariate correlations.

Table 10 (p. 94) summarises the means, standard deviations, and zero-order bivariate correlations for the whole sample at time 1. An inspection of bivariate relationships indicates that the relationships were generally in the expected direction. In detail, psychological flexibility was negatively correlated with all the main outcome measures. Thought suppression was also correlated with the main outcome variables and the mindfulness scale was significantly correlated with all the main outcome variables with the exception of the anxiety scale. The proposed mediators were also significantly inter-correlated.

Table 10

Means, Standard deviations, and bivariate correlations for Study 2 at baseline (Whole sample)

Variable	*M*	*SD*	1	2	3	4	5	6
1. Anxiety	8.86	6.49						
2. Depression	11.01	8.84	.62**					
3. Stress	15.41	8.94	.68**	.62**				
4. Psychological well-being	16.12	7.08	.53**	.72**	.63**			
5. Psychological flexibility	42.50	9.72	-.46**	-.62**	-.44**	-.51**		
6. Level of thought suppression	49.42	9.91	.40**	.34**	.38**	.37**	-.61**	
7. Mindfulness	35.07	6.79	-.18	-.37**	-.33**	-49**	.46**	-.30**

Note. Average N=71. ** signifies $p < .01$.

Based on Lovibond and Lovibond's (1995) cut-off scores for DASS-21 the mean level of distress for the whole sample (N=71) at baseline indicated mild levels of distress on the three scales. On the GHQ-12, Goldberg et al. (1997) produced a cut-off score of 3/4 to indicate psychological distress (GHQ scoring). Taking the sample as a whole 50.7% met the criteria for clinical distress at baseline. Independent samples t-tests were conducted comparing the intervention and waiting list at time 1 on all variables to examine whether the randomisation was successful. The t-tests revealed no significant differences between groups ($p > .05$) on all variables. Table 11 (p. 95) shows the means and standard deviations for the two conditions at time 1, alongside the significance level for independent samples t-test.

3.1.3. Normality tests

Similar to the first investigation, the main outcomes (i.e. DASS scales, GHQ-12) presented with a positive skew at certain time points in the intervention and waiting list groups. Transformations were attempted to correct the data, however, none of them was successful. Table 23 in Appendix 12 (p. 208) presents the normality statistics for the two groups for all the measures across time points.

3.1.4. Homogeneity of Variance

Levene tests were conducted on all variables across time points. All the tests turned out to be non-significant with the exception of the anxiety scale at time 3, $F(1, 43) = 11.56, p < .01$.

Table 11

Means, Standard Deviations, and Independent t-test Statistic Comparing Intervention to Waiting List Control Group at time 1 (Study 2).

Variable		M	*SD*	*df*	t	Sig.
Depression	Intervention	10.00	8.59	69	.94	.35
	Waiting list	11.98	9.09			
Anxiety	Intervention	7.98	6.23	69	1.12	.27
	Waiting list	9.71	6.72			
Stress	Intervention	14.36	8.88	69	.98	.33
	Waiting list	16.44	9.01			
Psychological wellbeing	Intervention	15.95	6.82	69	.20	.84
	Waiting list	16.38	7.41			
Psychological flexibility	Intervention	43.55	8.30	69	-.89	.38
	Waiting list	41.49	10.95			
Level of thought suppression	Intervention	50.94	8.77	69	-1.28	.21
	Waiting list	47.94	10.84			
Mindfulness	Intervention	36.16	6.21	69	-.53	.18
	Waiting list	34.01	7.23			

Note. Non-significant differences at $p>.05$.

3.2. Main analyses

To examine the effect of the intervention on participants' level of distress the investigation used the depression, anxiety, and stress scales (DASS) and a measure of psychological wellbeing (GHQ-12). Higher scores indicate greater distress on these measures. Mixed design (2X3) analyses of variance (ANOVA) were conducted with group (intervention vs waiting list) as a between-subjects factor and time (time 1, time 2, and time 3) as a within subjects factor. Table 12 (p. 98) summarises interaction statistics for mixed design ANOVAs conducted across time points. These overall analyses were followed by simple effect ANCOVAs for time 2 and time 3 (time 1 as a covariate). Each outcome variable was examined for simple effects twice (time 2 & time 3) and therefore this was accounted for on the significance value ($a/2$) which was set at $p \leq .025$ using a Bonferroni correction.

A mixed-design ANOVA on the **depression** scale resulted in a non-significant group by time interaction with sphericity assumed, F (2, 86) = 1.86, $p > .05$, $\eta^2 = .04$ (Figure, 5, p. 96). Simple effects on this scale (controlling for time 1) resulted in a non-significant between-group difference at time 2, F (1, 49) = 1.60, $p > .025$, and a marginally non-significant difference at time 3, F (1, 42) = 5.194, $p = .03$. Nonetheless, Cohen's d effect size for

between-group difference at time 2 was small to medium (d=.37) whilst at time 3 it was large (d=.70).

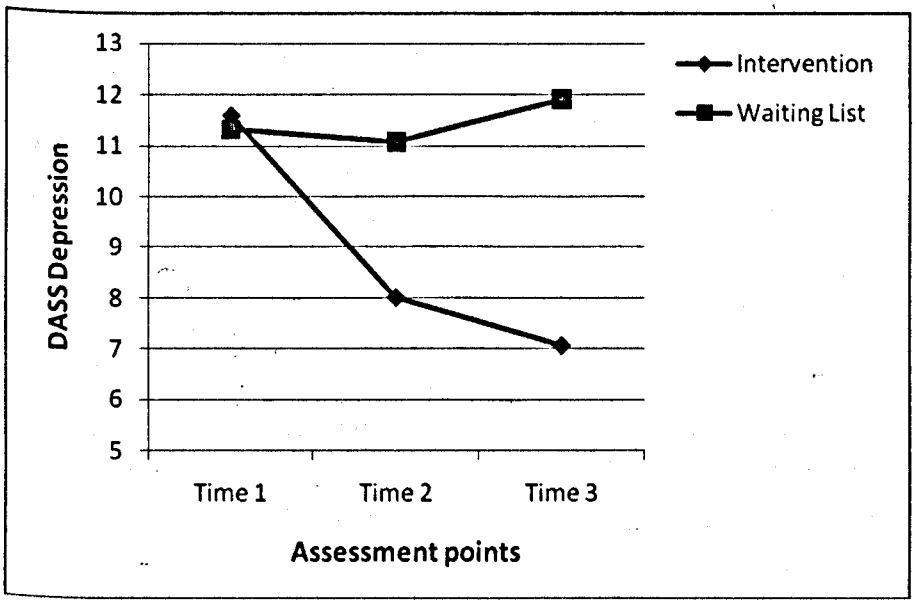


Figure 5. Depression scores across time for the intervention and waiting list groups. Group by time interaction is not significant. The between-group differences depict a medium effect size at time 2 and a large effect size at time 3.

A mixed-design ANOVA was repeated to investigate the effect of the intervention over time on the **anxiety** scale resulting in a significant overall interaction of group by time with F (2, 86) = 3.28, p = .04, η^2 = .06 . Figure 6 (p. 97) demonstrates the group by time interaction across time points. An inspection of the graph suggests that the intervention may have had a prophylactic effect for the intervention group at time 3 (time 3 coincided with university exams). Simple effect tests reflect a similar pattern since between-group differences at time 2 were non-significant, F (1, 49) = .00, p > .025 whilst time 3 between-group difference was significant with, F (1, 43) = 6.57, p =.01. The between group differences at time 2 produced a small effect size (d=.01) whilst at time 3 the effect size was medium to large (d=.67).

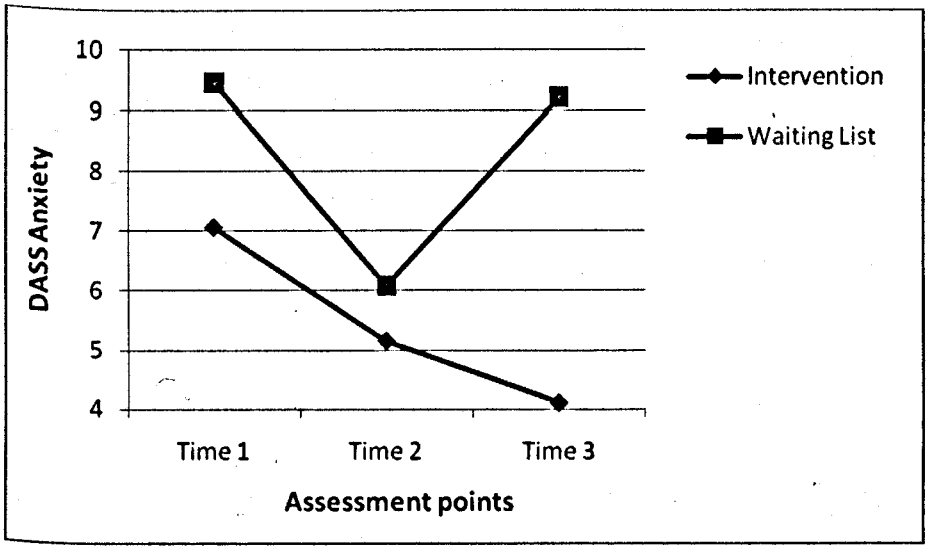


Figure 6. Time by group interaction on DASS anxiety at one and two months post intervention.

An ANOVA on **stress** across the three time points resulted in a non-significant group by time interaction with sphericity assumed, $F(2,86) = 1.87, p > .05, \eta^2 = .04$. ANCOVAs were conducted to examine simple effects at time 2 and time 3 controlling for time 1. The between-groups effect at time 2 emerged as non-significant with F (1, 49) = 3.01, $p > .025$, whilst the between groups effect at time 3 was significant with F (1, 42) = 9.52, $p < .01$, suggesting that the intervention group's level of stress was lower that the waiting list's at time 3. The difference between groups at time 2 produced a medium effect size (d=.50) whilst the difference at time 3 was large (d=.96).

Similar results were found for **psychological wellbeing** (GHQ-12), where a mixed design ANOVA produced a non-significant group by time interaction with sphericity assumed, F (2, 86) = 1.60, $p > .05$, $\eta^2 = .03$ (Figure 7, p. 98). Simple effect ANCOVAs (controlling for time 1) indicated a non-significant effect at time 2 with F (1, 50) = 3.374, $p > .025$ and a significant effect at time 3 with F (1, 42) = 5.95, $p < .025$. Cohen's d between-group effect size at time 2 was medium d=.53 and at time 3 was large d=.75.

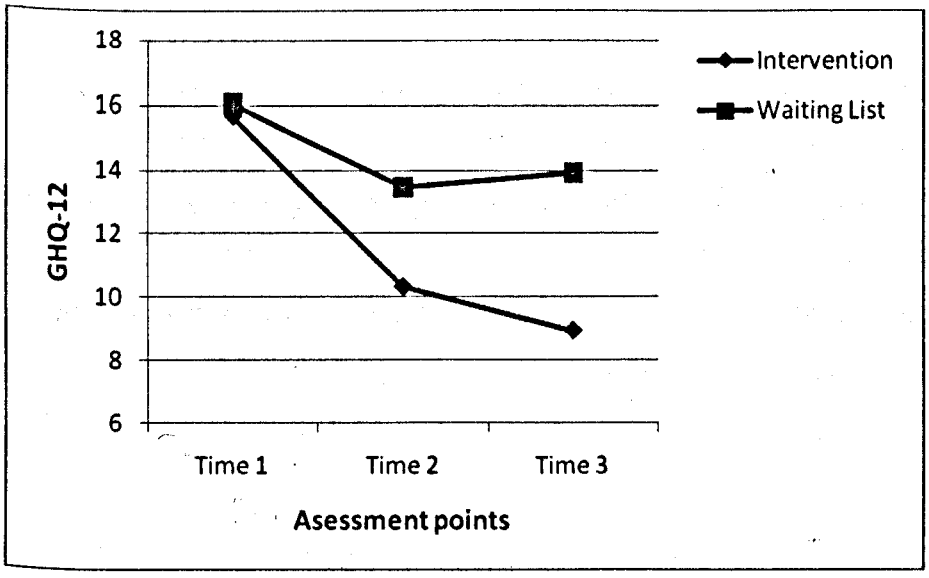


Figure 7. GHQ-12 scores across time for the intervention and waiting list. Group by time interaction is not significant. The between-group differences depict a medium effect size at time 2 and a large effect size at time 3.

Table 12

Means, Standard Deviations, and Mixed Design (2X3) Analysis of Variance (ANOVA) Interaction Statistics for the Outcome Variables (Study 2).

	ACT		Control		ANOVA			
	M	*SD*	M	*SD*	Effect[a]	*F* ratio	*df*	η^2
Psychological well-being (GHQ)								
Time 1	15.68	7.12	16.04	7.63				
Time 2	10.32	6.31	13.47	7.19	GXT (T1 to T2)	1.53	1,51	.03
Time 3	8.95	6.08	13.92	7.10	GXT (T1 to T3)	2.76	1,43	.05
					GXT (T1 T2 T3)	1.60	2,86	.03
Dass stress								
Time 1	14.98	8.95	17.24	9.47	GXT (T1 to T2)	1.20	1,50	.02
Time 2	9.52	9.03	14.47	5.50	GXT (T1 to T3)	3.82	1,43	.07
Time 3	9.90	6.17	16.69	8.32	GXT (T1 T2 T3)	1.87	2,86	.04
Dass anxiety								
Time 1	7.06	4.97	9.47	6.64				
Time 2	5.16	6.09	6.08	4.58	GXT (T1 to T2)	.42	1,50	.01
Time 3	4.11	4.03	9.24	8.01	GXT (T1 to T3)	2.63	1,43	.05
					GXT (T1 T2 T3)	3.28*	2,86	.06
Dass depression								
Time 1	11.58	9.47	11.32	9.01				
Time 2	8.00	9.09	11.08	7.17	GXT (T1 to T2)	.94	1,50	.02
Time 3	7.06	6.52	11.92	8.44	GXT (T1 to T3)	3.20	1,43	.07
					GXT (T1 T2 T3)	1.86	2,86	.04

Note. GHQ = General Health Questionnaire; ACT = Acceptance and Commitment Therapy; ANOVA = analysis of variance; G X T = group by time interaction effect; η^2 = eta squared (effect size); [a]main effects are not reported. *$p < .05$

3.3. *Mediation Analyses*

Mixed-design analyses of variance were conducted on all proposed mediators to examine any emergent group by time interaction effects with group as a between-group variable and time (time 1, time 2, time 3) as a within subject variable. These analyses were complemented by analyses of covariance (controlling for time 1). Each variable was tested twice (time 2 & time 3) and thus a Bonferroni correction was introduced $(a/2)$ and the significance value was set at $p \leq .025$. As can be seen in table 13 (p. 99), none of the variables resulted in a significant group by time interaction (p>.05). Equally, none of the simple effect tests (controlling for time 1) indicated significant between-group differences at time 2 or at time 3. It is noteworthy however that the effect sizes on the adjusted means (controlling for time 1 differences) for psychological flexibility and mindfulness were of medium size. In detail, the between-group difference at time 2 for psychological flexibility was medium (d= .43), F (1,49) = 2.21, p>.025 and at time 3 the effect size was medium to large (d= .61), F (1,42) = 4.05, p>.025. On the mindfulness scale the effect size of between-group difference at time 2 was medium (d= .45), F (1,49) = 2.51, p>.025 whilst at time 3 the effect size was medium to large (d= .65), F (1,42) =4.29, p>.025. The effect sizes for psychological flexibility and mindfulness suggest that these two scales may have potential as mediators. Contrary, the effect sizes for thought suppression were small (.21-.30) and it was decided not to use this scale in subsequent mediation analyses. It is noteworthy however, that a within-group analysis of variance over time (baseline, time 1, time 2) indicated that the level of thought suppression had significantly reduced only for the intervention group, F (2, 36) = 3.44, p<.05, η^2 = .16.

To assess the hypothesis that the main outcomes were mediated by changes in the proposed process variables the researcher utilised the bootstrapping technique as described by Preacher and Hayes (2008). Mediation tests were conducted on all statistically significant outcomes (i.e., stress and anxiety scales and GHQ-12 at two months post intervention). Psychological flexibility (AAQ) was significantly correlated with the main outcome variables (p<.05) at time 1 and produced notable between-group effect sizes and was therefore retained as a potential mediator. Similarly, the mindfulness scale (FMI) was significantly correlated with the stress scale and the GHQ-12 at time 1, produced notable between-group effect sizes, and was therefore entered as a mediator in these analyses. As in the previous investigation, a multiple mediator test was conducted to examine the total mediation effect followed by simple mediation tests. All the analyses were conducted with 2000 bootstrap samples and

with confidence intervals set at 95% (Preacher & Hayes, 2008). Table 14 (p. 102) presents the results of the mediation analyses.

Table 13
Means, standard deviations, and analysis of variance (ANOVA) interaction statistics for the proposed mediators (Study 2).

	ACT		Control		ANOVA			
	M	*SD*	M	*SD*	Effect[a]	*F* ratio	*df*	η^2
Psychological flexibility (AAQ)								
Time 1	41.68	8.35	41.69	11.54	GXT (T1 to T2)	1.31	1,50	.02
Time 2	45.08	9.73	42.37	8.38	GXT (T1 to T3)	3.52	1,43	.07
Time 3	47.12	9.54	42.33	11.12	GXT (T1 T2 T3)	1.75	2,86	.04
Level of thought suppression (WBSI)								
Time 1	51.78	10.20	46.80	11.25				
Time 2	49.31	8.08	46.54	9.92	GXT (T1 to T2)	1.06	1,50	.02
Time 3	47.09	10.51	46.53	11.21	GXT (T1 to T3)	2.42	1,43	.05
					GXT (T1 T2 T3)	1.35	2,86	.03
Mindfulness (FMI)								
Time 1	36.14	6.33	34.62	7.81	GXT (T1 to T2)	1.92	1,43	.04
Time 2	37.29	5.39	34.42	5.75	GXT (T1 to T3)	.46	1,50	.01
Time 3	37.54	6.16	33.54	6.53	GXT (T1 T2 T3)	1.03	2,86	.02

Note. ACT = Acceptance and Commitment Therapy; ANOVA = analysis of variance; G X T = group by time interaction effect; η^2 = eta squared (effect size); [a]main effects are not reported. $^*p < .05$.

To examine mediation effects for **stress**, stress (time 3) was entered as a dependent variable, group was used as the predictor variable, and psychological flexibility (AAQ) and mindfulness (FMI) were entered at the proposed mediators (time 1 was entered as covariate). The total effect of intervention on stress at time 3 (total effect = -6.72, p = .01) was reduced when the mediators were entered in the model (direct effect = -4.46, p = .03). The indirect effect of the intervention on stress at time 3 was significant with a point estimate of -2.26 for the total model with BCa CI -5.48 to -.04. None of the mediators had a unique contribution to the model. To further clarify, single mediation tests were performed for each of the mediators (i.e., psychological flexibility and mindfulness). The total effect of the intervention on stress (at time 3) was reduced when mindfulness was entered in the model (total effect = -7.02, p =.00) resulting in a direct effect of -5.60 (p = .01). The indirect effect of mindfulness was significant with a point estimate of -1.43 with BCa CI of -3.43 to -.01. This result suggests that increases in participants' mindfulness levels partly mediated the decrease in stress at two months post intervention. Psychological flexibility emerged as a non significant mediator of the intervention effect on stress at time 3 with a point estimate of -1.76 with BCa CI of -4.55

to .01. It is interesting that psychological flexibility did not emerge as a significant mediator when examined independently whereas in the total mediation model mindfulness and psychological flexibility did not explain unique variance. This might suggest that the two scales overlap in the variance explained.

To examine mediation effects for **anxiety**, anxiety (at time 3) was entered as a dependent variable and group was used as the predictor variable with psychological flexibility (AAQ) entered as the proposed mediator[8] (responses on these variables at time 1 were entered as covariates). The bootstrap results indicated a non-significant indirect effect with a point estimate of -.66 and BCa CI of -2.46 to .10. This finding suggests that the mediation hypothesis was not supported for the between-group differences on the anxiety subscale.

To investigate mediation effects for **psychological well-being** (GHQ-12), the GHQ-12 (at time 3) was entered as a dependent variable, group was used as the predictor variable and psychological flexibility (AAQ) and mindfulness (FMI) were entered as the proposed mediators (time 1 was entered as a covariate). The bootstrap results indicated full mediation since the total effect of the intervention on GHQ at time 3 (total effect = -4.95, p = .02) became non significant when the proposed mediators were entered in the model, with direct effect -1.97 (p >.05). The total indirect effect was significant with a point estimate of -2.98 and BCa CI of -6.52 to -.50. The mindfulness scale showed a unique contribution to the model with a point estimate of -1.15 and BCa CI of -4.18 to -.02. This overall analysis was complemented by simple mediation tests to explore the contribution of each mediator. Psychological flexibility fully mediated this relationship since when it entered the model the total effect (total effect = -4.97, p =.01) became non significant (direct effect = -2.84, p >.05). The mediating effect of psychological flexibility was significant with a point estimate of -2.14 and BCa CI of -5.03 to -.06. Mindfulness (FMI) also emerged as a full mediator reducing the total effect of the intervention on GHQ-12 at time 3 (total effect = -4.81, p = .02) when entered in the model (direct effect = -2.85, p >.05). The indirect effect of mindfulness was significant with a point estimate of -1.97 and BCa CI of -4.84 to -.16. Given these findings it is possible that the two measures reflect a similar construct. These findings suggest that psychological flexibility and mindfulness fully mediated the scores on the GHQ-12 in the intervention group two months post intervention.

[8] The mindfulness scale was not entered as a proposed mediator in this model since it did not correlate significantly with the anxiety scale at time 1.

Table 14

Bootstrapped Point Estimates and Bias-Corrected and -Accelerated (BCa) Confidence Intervals (CIs) for the Total mediation and single mediation Effects on Primary Outcomes (Study 2).

		Product of coefficients		Bootstrapping BCa 95% CI	
Mediation Test	Variable	Point estimate	*SE*	Lower	Upper
	DASS stress (time 3)				
Single Mediation	AAQ	-1.76	1.19	-4.55	.01
	FMI	-1.43*	.93	-3.44	-.01
Multiple Mediation	Total	-2.26*	1.50	-5.48	-.04
	-Specific effect AAQ	-1.63	1.27	-4.68	.08
	-Specific effect FMI	-.63	1.00	-3.42	.59
Single Mediation	**DASS anxiety (time 3)**				
	AAQ	-.66	.63	-2.46	.10
Single Mediation	**GHQ-12 (time 3)**				
	AAQ	-2.14*	1.28	-5.03	-.06
	FMI	-1.96*	1.15	-4.84	-.16
Multiple Mediation	Total	-2.98*	1.52	-6.52	-.51
	-Specific effect AAQ	-1.82	1.27	-4.84	.04
	-Specific effect FMI	-1.15*	.89	-4.19	-.03

Note. N=45; AAQ: Psychological flexibility; FMI: Freiburg mindfulness inventory; GHQ-12: General health questionnaire-12; Specific effect: controlling for the effect of the other variables in the model; 2,000 bootstrap samples; * significant at 95% BCa.

3.4. Discussion (Study 2)

The second study aimed to extend the efforts of Study 1 and seek support for the generalisability of its main findings. Thus, the format of an ACT intervention for Study 2 was identical to that of Study 1. A one-day ACT intervention was administered to university students examining its effectiveness at one- and two-months post intervention in comparison to a waiting list. Study 2 also intended to examine whether intervention effects were mediated by ACT processes. The proposed mediators in Study 2 were slightly dissimilar to those examined in Study 1. The automatic thought believability and behavioural activation scales were dropped and a thought suppression scale was added to examine whether participants' had altered their relationship with their cognitions. Furthermore, a specific measure of mindfulness was introduced whilst the psychological flexibility scale was retained.

Similar to Study 1, the main outcome hypothesis was partly supported. In detail, a group by time interaction emerged as statistically significant for the anxiety scale. This finding is notable in that the interaction seemed to exert a prophylactic effect for the ACT condition two months post intervention since this assessment point coincided with the university exam period suggesting that the intervention group was better equipped to manage the anxiety during that phase. A similar pattern was observed for the other outcome scales although group by time interactions did not reach statistical significance. However it is notable that the effect sizes for these analyses (baseline to two-months) were of medium size across outcomes. A strong debate exists on whether one should only examine the statistical significance value whilst evaluating outcomes (Thompson, 1998). Indeed, Rosenboom (1997) strongly argued that significance testing should be banned, whilst others suggested examining the significance value alongside the effect size (Thompson, 1998). Coe (2002) observes that the problem of basing result interpretation merely on the *p* value is that this depends on both the effect size and sample size. It therefore follows, that if the achieved sample is small, the study might be underpowered and may not attain an acceptable level of significance (Lenth, 2007). Thus, Lenth (2007) suggests that in cases where the effect size is notable but *p* does not reach significance it may be worth examining the observed power of the tests in question. Indeed, the present data paint a similar picture. The interaction statistics for stress, depression, and psychological well-being may have been underpowered since, for the main outcome interactions the achieved power was lower than 50% (37%-48%).

In addition, between-group comparisons two months post intervention were significant for all main outcomes (with the exception of the depression scale which was marginally non-significant). Indeed, effect sizes for these analyses were large; larger to those observed in other preventative ACT studies (e.g., Bond & Bunce; Flaxman & Bond, 2006). The pattern of results is slightly inconsistent to Study 1 which indicated between-group differences at one-month post intervention. Indeed, a closer examination of the present data might explain this discrepancy. Both the intervention and waiting list groups seemed to experience notable improvements in mental health one-month post intervention although between-group effect sizes were medium suggesting a more pronounced improvement for the ACT group (as was the case in Study 1). This difference was not statistically significant however. The improvement on mental health for both groups one-month post intervention was not unexpected since this assessment phase coincided with the winter holiday period. Interestingly, this was not the first ACT study that found a delayed effect for the intervention

group. Hayes et al. (2004) administered a one-day intervention to substance abuse counsellors and found that for the ACT group the main outcome variable of frequency of stigmatizing attitudes did not improve at post- but did at three months follow-up. Beyond the history effects observed in the present study, it is possible that participants may have required some time to practice and experiment with the skills before experiencing notable impact.

The mediation hypothesis was supported for two (stress, GHQ-12) out of three outcome variables that evidenced a significant between-group effect two months post. The thought suppression scale (WBSI) utilised in this study was dropped from mediation analyses since it did not result in significant between-group differences. Indeed, this finding is puzzling and may be due to a noteworthy inequality between conditions on this measure at baseline. Subsequently, measures of psychological flexibility and mindfulness were entered as proposed mediators in single and multiple mediation models. For the stress scale, only mindfulness emerged as a partial mediator when entered in a single mediator model. When mindfulness was entered alongside psychological flexibility in a multiple mediator model the combined indirect effect was increased; however, none of the variables explained unique variance over the effect of the other. A similar finding was observed in Study 1 and may reflect a strong conceptual similarity across variables (Preacher & Hayes, 2008). Indeed, mindfulness is expected to be a component of psychological flexibility (Hayes et al., 2006). The mediation results for psychological well-being were more notable. In fact, both psychological flexibility and mindfulness emerged as full mediators in single mediation models and the total indirect effect was increased when they were entered in a multiple mediation model. Interestingly, only mindfulness explained unique variance in this model. This is a repetition of the pattern of results of Study 1 where on one outcome the more specific process measure explained unique variance in the total model. This might be reasonable since psychological flexibility is designed as a unified construct of ACT processes and may not account sufficiently for individual processes in the same way as a more specific measure may. Moreover, the findings provide support for the ACT mediation hypothesis.

This study had a number of limitations. The biggest disadvantage was that the total dropout percentage was large especially for the intervention group. However, it is worth observing that if one discounts participants that failed to attend the training session, the dropout percentage is similar to that of Study 1. It is disappointing that a number of participants had to withdraw from the study due to the study not being able to offer a training session during

the weekend. The researcher made significant efforts to achieve this; however, there were insurmountable organisational barriers. These difficulties ascertain the ecological validity of the present studies which were conducted with few resources. Finally, the trainer was the same as in Study 1 and therefore generalising these findings to other trainers might be a challenge. However, this is less of a concern since other brief preventative ACT interventions have already demonstrated effectiveness across different research teams and trainers (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006; Hayes et al., 2004).

This study's main findings were somewhat more pronounced than those observed in Study 1. This may be due to several factors such as, 1) increased experience of the trainer, 2) reflecting a selective sample resulting from participant dropout early in the process, or 3) may be due to the fact that participants in this study were more distressed at baseline. It is disconcerting to assume that the results might have been different if the dropout percentage was smaller in this study. However, given that participation in preventative programs is voluntary one can assume that there is always a possibility that individuals that attend the whole program may be somewhat different to those that do not. This reflects Jones and Johnston's (2000) observation that participants who volunteered for a preventative program were less distressed that those that did not. Although participants that dropped out from this study were no more or less distressed than those that remained it is difficult to ascertain whether they differed on other unknown characteristics.

In conclusion, this study reinforced the findings of Study 1 and provided further support that a one-day ACT intervention can have a beneficial impact on university students' mental health at post. It is undeniable that the findings are limited and not as impressive as one might observe in other preventative ACT studies. However, it is notable that a short, general, one-day, ACT intervention can have an impact two months later. Furthermore, the results seem to support ACT's mediation hypothesis suggesting that changes were for the most part emanated via theoretically-consistent mechanisms. This study encouraged participants to give some feedback on the intervention the implications of which are explored in a general discussion section.

4. Study 3

4.1. Preliminary analyses.

4.1.1. Attrition

Attrition occurred either due to participants being unable to attend the training session or due to failing to complete one of the online questionnaires. Figure 8 (p. 107) shows participant flow for Study 3. In the intervention group four participants withdrew prior to completing the first questionnaire due to not being able to attend the training. Five participants withdrew from the waiting list during the same period for the same reasons. From time 1 to time 2, four participants withdrew from the intervention, two failing to attend the training and the remaining did not complete the subsequent two questionnaires. Three participants withdrew from the waiting list at the same stage without giving a reason. Overall, 22% of participants withdrew from the intervention group and 22% withdrew from the waiting list. Without taking into account participants that did not complete the battery of questionnaires at time 1 (n=9) and those that did not attend the training (n=2) the attrition percentage from time 1 to time 2 for the intervention group was 8% and for the waiting list 9.67%. No participants withdrew from time 2 to time 3 in either group. Due to the small number of participants that dropped out after time 1 (n=7) it was not possible to conduct an analysis to compare them with study completers. An inspection of box-plots demonstrated that one participant in the intervention group presented as an outlier across time points and was therefore removed from the data set. Finally, during questionnaire completion a small number of items (26 data points) were missed by participants in both groups and across time points.

4.1.2. Baseline levels of distress and bivariate correlations

Table 15 (p. 107) shows the means, standard deviations, and zero-order bivariate correlations for outcome and process variables at baseline. For the most part the correlations were consistent with the study hypotheses. That is, psychological flexibility was correlated with all the main outcome variables and the proposed process variables in the expected directions. The thought suppression scale (WBSI) was correlated with the outcome variables and with psychological flexibility (AAQ); however, it did not correlate with the mindfulness scale (FMI) as expected. The mindfulness scale correlated with psychological well-being and psychological flexibility in the expected directions.

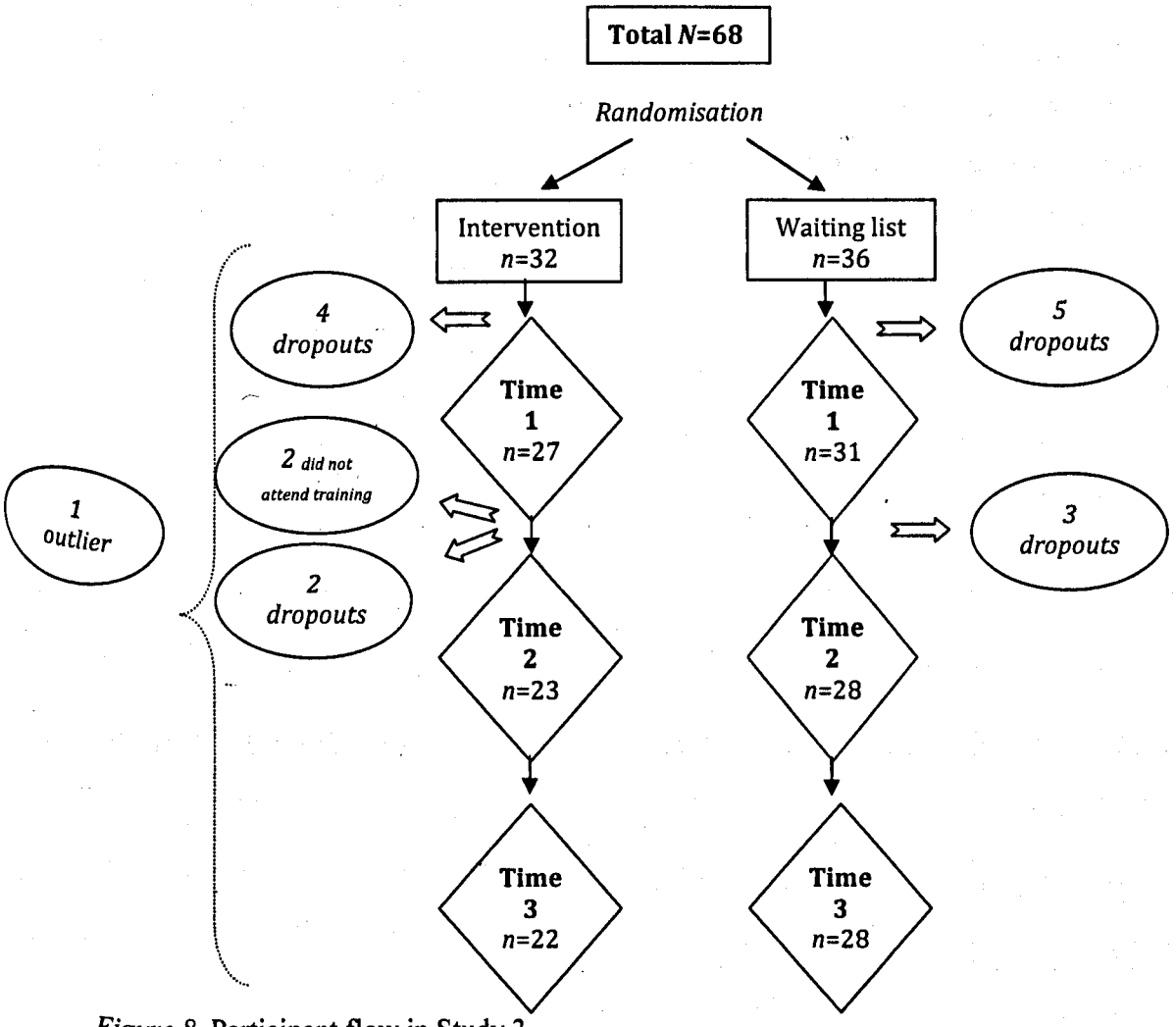


Figure 8. Participant flow in Study 3.

Table 15

Means, Standard Deviations, and Bivariate Correlations for Study 3 at Baseline (Whole sample)

Variable	*M*	*SD*	1	2	3	4	5	6
1. Anxiety	3.07	4.04						
2. Depression	6.42	8.05	.47**					
3. Stress	10.04	6.73	.60**	.70**				
4. Psychological well-being	11.60	7.14	.55**	.75**	.67**			
5. Psychological flexibility	49.76	7.22	-.54**	-.50**	-.41**	-.48**		
6. Level of thought suppression	46.10	9.64	.36**	.27*	.41*	.30*	-.52**	
7. Mindfulness	35.67	7.23	-.21	-.24	-.21	-.31*	.45**	-.18

Note. N =58. * signifies p< .05, ** signifies p < .01.

An examination of participants' scores on the outcome measures at time 1 indicates a low level of distress at this time period. Specifically, based on Lovibond and Lovibond's (1995) cut-off scores for DASS-21 the mean level of distress for the whole sample at baseline indicates normal levels of distress on the three scales. Sixteen participants (27.58%) met the clinical cut-off for caseness on the GHQ-12 (GHQ scoring). Eight participants with high distress were from the intervention group and eight were from the waiting list group. Independent samples t-tests were conducted on outcome and process variables to examine the equivalence of the two groups at baseline. Table 16 (p. 108) presents the means and standard deviations for the two conditions at time 1 alongside t-test statistics. The analysis found no significant differences between the two groups at baseline ($p>.05$) for all the outcome and process variables.

Table 16

Means, Standard Deviations, and Independent t-test Statistics Comparing Intervention to Waiting List Group at Baseline (Study 3).

Variable		M	*SD*	*df*	t	Sig.
DASS stress	Intervention	11.26	6.98	56	1.30	.39
	Waiting list	8.97	6.43			
DASS anxiety	Intervention	2.67	2.72	56	-.73	.49
	Waiting list	3.42	4.94			
DASS depression	Intervention	7.85	9.82	56	1.28	.21
	Waiting list	5.17	6.00			
Psychological wellbeing	Intervention	12.49	7.11	56	.87	.39
	Waiting list	10.84	7.19			
Psychological flexibility	Intervention	48.00	7.26	56	-1.76	.83
	Waiting list	51.29	6.93			
Level of thought	Intervention	47.71	8.25	56	1.18	.24
suppression	Waiting list	44.71	10.65			
Mindfulness	Intervention	35.52	7.62	55	-.17	.87
	Waiting list	35.84	7.02			

Note. non-significant differences at $p>.05$.

4.1.3. Normality tests

Similar to the previous two investigations the main outcome scales (i.e., DASS scales, GHQ-12) presented with a positive skew. A selection of transformations was conducted in an attempt to correct the data, however they were unsuccessful, and the original data were

retained for analyses. Appendix 12 (p. 209) presents the K-S statistics for all the main outcome scales across time points.

4.1.4. Homogeneity of Variance.

In order to test for the assumption of homogeneity of variance across time points, Levene tests were conducted. All Levene tests emerged as non-significant across time points apart from DASS anxiety at time 1, $F(1, 56) = 5.29, p = .03$ and time 3, $F(1, 49) = 4.75, p = .03$.

4.2. Main analyses

To examine main effects of the intervention, this study used the depression, anxiety and stress scales (DASS) and the GHQ-12, a measure of psychological well-being (high scores indicate higher distress on both measures). Mixed design (2X3) analyses of variance (ANOVA) were conducted on all the main outcome variables with group as a between-subject factor and time (time 1, time 2, and time 3) as a within subjects factor. These analyses were followed by simple effect tests for time 2 and time 3 using ANCOVA and controlling for time 1. For these tests a Bonferroni correction was applied to reduce the possibility of a Type 1 error and since each outcome was tested twice (time 2 & time) the benchmark of significance was set at $p \leq .025$. Table 17 (p. 110) outlines the interaction statistics for mixed design ANOVA conduced across time points.

The ANOVA interaction on **stress** (time 1, time 2, and time 3) was non-significant. The assumption of sphrecity was violated in this analysis and the Huynh-Feldt correction was used ($\tilde{\varepsilon} = .87$) with $F(2, 94) = 2.67, p>.05$. The group by time interaction for time 1 to time 3 was also not significant with sphericity assumed and $F(1, 49) = .30, p>.05$. However, the interaction of group by time for time 1 to time 2 emerged as significant, with an inspection of the graph indicating an increase of the waiting list's level of stress from time 1 to time 2 (see Figure 9, p. 111). This effect was significant with sphericity assumed and $F(1, 49) = 7.30, p < .01$. Simple effect tests were conducted to control for time 1 and emerged as marginally non-significant (with Bonferroni correction) for time 2, $F(1, 48) = 4.78, p=.03$ and non-significant for time 3, $F(1, 48) = .06, p>.025$. The effect size of the difference between groups was medium to large ($d= .63$) at time 2 and small ($d=.10$) at time 3.

Table 17

Means, Standard Deviations, and Mixed Design (2X3) Analysis of Variance (ANOVA) Interaction Statistics for the Outcome and Process Variables (Study 3).

	ACT		Control		ANOVA			
	M	*SD*	M	*SD*	Effect[a]	*F* ratio	*df*	η^2
Psychological well-being (GHQ)								
Time 1	12.82	7.63	10.19	6.86				
Time 2	11.44	7.67	14.11	5.78	GXT (T1 to T2)	10.50*	1,49	.17
Time 3	12.28	7.80	11.82	5.50	GXT (T1 to T3)	1.09	1,49	.02
					GXT (T1 T2 T3)	2.77	2,94	.06
Depression								
Time 1	8.10	10.48	4.30	5.29				
Time 2	7.14	8.40	5.86	5.98	GXT (T1 to T2)	3.46	1,49	.07
Time 3	6.40	7.41	4.37	5.18	GXT (T1 to T3)	.38	1,49	.02
					GXT (T1 T2 T3)	1.09	2,94	.02
Anxiety								
Time 1	3.00	2.82	3.26	4.97				
Time 2	3.37	3.35	3.53	2.95	GXT (T1 to T2)	.51	1,49	.01
Time 3	4.87	5.59	3.56	4.16	GXT (T1 to T3)	1.48	1,49	-.02
					GXT (T1 T2 T3)	.78	2,94	.02
Stress								
Time 1	11.64	7.63	8.75	7.76				
Time 2	11.23	6.16	12.44	5.96	GXT (T1 to T2)	7.30*	1,49	.12
Time 3	13.37	6.16	11.26	6.57	GXT (T1 to T3)	.29	1,49	.01
					GXT (T1 T2 T3)	2.66	2,94	.04

Note. GHQ = General Health Questionnaire; ACT = Acceptance and Commitment Therapy; ANOVA = analysis of variance; G X T = group by time interaction effect; η^2 = eta squared (effect size); [a]main effects are not reported; *$p < .05$.

The interaction effect at time 2 might suggest a prophylactic effect for the intervention group (an inspection of the yearly calendar indicates that this time point coincided with a busy academic period). However, an inspection of the between-group means for the stress scale and of the graph (Figure 9, p. 111) indicates a notable difference in the means of the two groups at time 1. This difference renders it difficult to clarify the interaction effect, and to further test this finding it was decided to conduct a within-group ANOVA for the intervention and waiting list groups separately with time as a within subject variable (time 1, 2, &3). Since the stress scale was to be examined twice (ACT group and waiting list group) a Bonferroni correction was applied to control for family wise error and the significance value was set at $p \leq .025$. A within group ANOVA with time as a within subject variable (time 1, 2, & 3) conducted for the intervention group indicated no-significant changes over time with the Huynh-Feldt correction used $(\tilde{\varepsilon} = .80)$ and F (2, 42) =1.09, p>.025, η^2=.04 whilst a within group ANOVA for the waiting list group across time (time 1, 2, & 3) indicated a significant

over-time effect with the Huyhn-Feldt correction used $(\tilde{\varepsilon} = .82)$, F (2, 52) = 4.98, p<.025, and a large effect size $\eta^2 = .16$. These findings suggest that whilst the intervention group did not show significant changes in the level of stress over time, the waiting list control group experienced an increase in the level of stress.

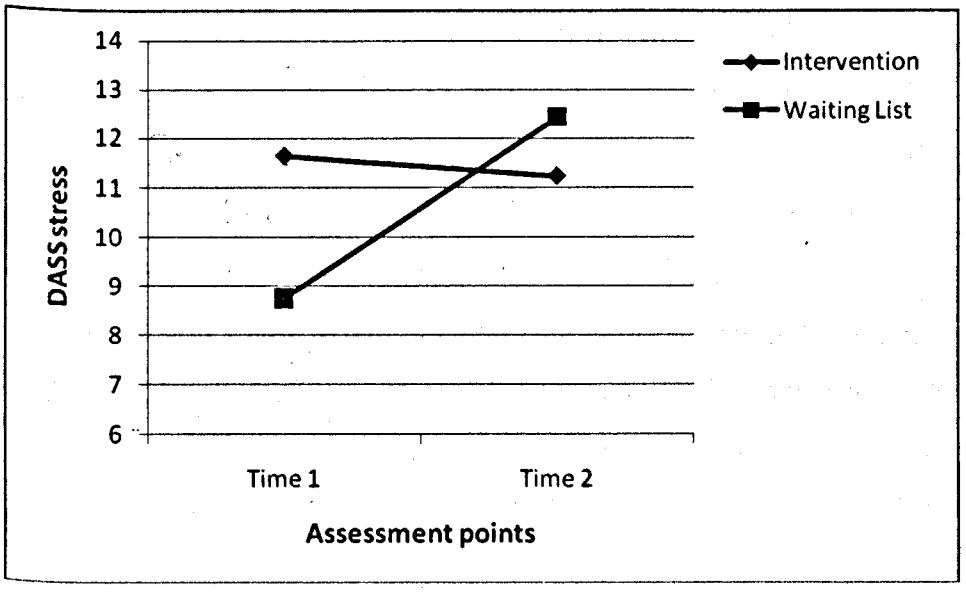


Figure 9. Group by time interaction for DASS stress from baseline to one-month post.

An ANOVA testing for main effects on the **anxiety scale** resulted in a non-significant interaction when entering all time points with F (2, 94) = .78, p>.05, $\eta^2 = .02$. Equally, the interaction effect was non-significant when entering time 1 with time 2 [F (1, 49) = .44, p>.05] and for time 1 with time 3 [F (1, 49) = 1.48, p>.05]. Simple effect ANCOVAs (controlling for time 1 as a covariate) did not result in any significant between-group effects for time 2 [F (1, 48) = .75, p>.025, d=.24] or time 3 [F (1, 48) =1.24, p>.025, d=-.31] with small effect sizes, suggesting that the two groups were not differentiated on the levels of anxiety at one-month or two-months post intervention. Similarly, a mixed design ANOVA was conducted to examine the effects of the intervention on DASS **depression**. The overall group by time interaction across time points (time 1, time 2, and time 3) was non-significant with sphericity assumed, F (2, 94) = 1.09, p>.05, $\eta^2 = .02$. Similarly, the test was non-significant when entering time 1 with time 2 [F (1, 49) = 3, 46, p>.05] and was non-significant for time 1 with time 3 [F (1, 49) = .78, p>.05]. Simple effect tests (ANCOVAs) controlling for time 1 as a covariate were also non-significant for time 2 [F (1, 48) = 1.73, p>.025, d=.38] and for time 3 [F (1, 48) = .00, p>.025, d=.00] with small effect sizes.

The examination of the intervention effect on participants **psychological well-being** (GHQ-12) resulted in a non-significant group by time (time 1, time 2, and time 3) interaction with the Huynh-Feldt correction ($\tilde{\varepsilon} = .90$), F (2, 94) = 2.77, p>.05, $\eta^2 = .06$. The group by time interaction with time 1 and time 2 emerged as significant with a large effect size, with sphericity assumed and F (1, 49) = 10.50, p=.01, $\eta^2 = .17$ (Figure 10, p. 112). An examination of the means and of the plot for this effect suggests an increase in the psychological distress of the waiting list group at time 2 in comparison to the intervention condition. An interaction effect was not observed for the group by time interaction of time 1 with time 3 [F (1, 49) = 1.09, p>.05, $\eta^2 = .02$]. Simple effect tests (controlling for time 1) reinforced these findings with a significant between-group difference at time 2 [F (1, 48) = 8.22, p=.01] and a non-significant between-group difference at time 3 [F (1, 49) = .21, p>.025]. The effect size of the standardised mean differences between groups was large (d=.83) at time 2 and small (d=.13) at time 3.

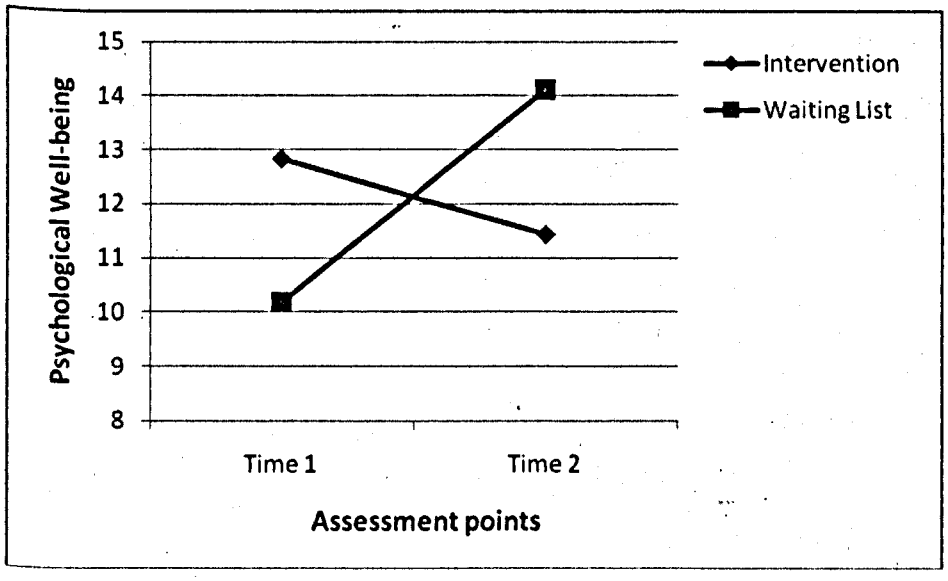


Figure 10. Group by time interaction for psychological well-being (GHQ-12) from baseline to one-month.

Similarly to the stress scale, there was a difference in the means of the two groups at time 1 making it difficult to understand the interaction effect. To further test, a within-group ANOVA was conducted for the intervention and waiting list groups separately on the GHQ-12 with time as a within subject variable (time 1, 2, & 3). Since this analysis was to be

conducted twice (ACT group and waiting list group) a Bonferroni correction was applied to control for family wise error with $p \leq .025$. As was found for the stress scale, this analyses suggested that the intervention group did not experience any significant changes in the levels of psychological well-being over time (time 1, time 2, & time 3), F (2, 42) =.27, p>.025, $\eta^2 = .01$, whereas the waiting list group experienced a significant and large deterioration of psychological well-being over time, F (2, 52) = 4.35, p<.025, $\eta^2 = .14$.

4.3. Mediation Analyses

Mixed-design analyses of variance were conducted on all proposed variables to examine any emergent group by time interaction effects, with group as a between-group variable and time (time 1, time 2, & time 3) as a within subject variable. These analyses can be seen on table 18 (p. 114). In brief, there were no significant group by time interactions for none of the proposed mediator variables. Further, simple effect tests (ANCOVAs) controlling for time 1 did not reveal any significant between-group differences at time 2 nor at time 3 across mediators (p>.025[9]). Between-group effect sizes at time 2 and time 3 calculated in Cohen's d were small across the proposed mediator variables (i.e., .14-.24). Therefore, mediation analyses were not conducted in this investigation due to minimal observed differences in the means of the intervention group in comparison to the waiting list at time 2 and time 3.

[9] The benchmark of significance was set at $\alpha/2$ for simple effect tests since each scale was tested twice (time 2 & time 3).

Table 18

Means, Standard Deviations, and Analysis of Variance (ANOVA) Interaction Statistics for the Proposed Process Variables (Study 3).

	ACT		Control		ANOVA			
	M	*SD*	M	*SD*	Effect[a]	*F* ratio	*df*	η^2
Psychological flexibility (AAQ)								
Time 1	47.23	6.60	51.59	6.82	GXT (T1 to T2)	1.93	1,49	.04
Time 2	47.99	6.98	50.71	7.70	GXT (T1 to T3)	.05	1,49	.00
Time 3	49.65	6.80	53.53	7.05	GXT (T1 T2 T3)	.62	1, 94	.01
Level of thought suppression (WBSI)								
Time 1	48.27	7.78	43.74	10.17				
Time 2	46.32	9.56	44.65	9.56	GXT (T1 to T2)	1.00	1,49	.02
Time 3	46.07	8.14	41.82	10.76	GXT (T1 to T3)	.01	1,49	.00
					GXT (T1 T2 T3)	.88	2, 94	.02
Mindfulness (FMI)								
Time 1	35.82	8.16	35.93	6.97	GXT (T1 to T2)	.01	1, 49	.00
Time 2	35.76	8.60	35.85	8.59	GXT (T1 to T3)	.08	1,49	.00
Time 3	37.09	7.28	37.27	7.28	GXT (T1 T2 T3)	.00	2,94	.00

Note. ACT = Acceptance and Commitment Therapy; ANOVA = analysis of variance; G X T = group by time interaction effect; η^2 = eta squared (effect size); [a]main effects are not reported. $^*p <$ .05.

4.4. Discussion (Study 3)

The design and variables introduced in Study 3 were identical to Study 2. However, in Study 3 a one-day ACT intervention was administered to university employees to examine its effectiveness on mental health variables at one- and two months post intervention in comparison to a waiting list. The study also sought to examine whether any intervention effects were mediated by ACT consistent mechanisms.

The results of this study provided limited support for the main outcome hypothesis. The group by time interaction comparing ACT to a waiting list was statistically significant for psychological well-being and stress from baseline to one month post with large effect sizes. This effect was not maintained at two months post intervention. Similar to Study 2, the group by time interaction suggests that the intervention may have exerted a prophylactic effect at one-month. Indeed, within group comparisons indicated that though the intervention group did not experience changes in mental health over time, the waiting list group experienced deterioration over time. An examination of the yearly calendar indicated that the one-month assessment coincided with a busy academic period. It is essential to reflect on why the

intervention group did not show improvements over time. An examination of baseline levels of distress indicates that both groups experienced relatively low levels of distress; this sample characteristic may have resulted in a floor effect in subsequent measurements. Indeed, this could be a valid explanation since the baseline assessment coincided with the run-up to the winter break and it is possible that participants were less distressed during that period.

Mediation analyses did not result in any significant findings rendering it difficult to ascertain the mechanisms by which the intervention may have facilitated participants in the intervention group not to deteriorate at one month post. The lack of mediation findings may suggest that participants did not engage with ACT skills sufficiently after the training. A possible explanation is that participants were less motivated to engage with the intervention skills. This explanation is consistent with participants' low distress at baseline which may have resulted in them considering skills' practice unnecessary. Furthermore, university employees may have found it more difficult to practice the intervention skills given their busy life-styles. Indeed, 31.6% of participants stated that they were involved in an additional occupational role or they were studying part-time.

Beyond the above considerations one needs to account for the significant interaction effects observed in this study. Arguably, it is possible that the results of the present study mirror the impact of non-specific factors since analyses did not support an ACT mediation hypothesis. It is possible that having experienced the intervention, participants may have felt better-supported during the following busy academic period though this effect appears to have been short-lived. Nevertheless, given that non-specific factors were not measured it is difficult to examine what variables facilitated this effect. Equally, it is difficult to exclude the possibility that the intervention effect was emanated through ACT mechanisms that were not adequately covered by the measures used in this study. This study was complemented by open-ended questions encouraging participants to share their views of the intervention in an effort to illuminate main findings; these are considered in a general discussion section.

This study had certain limitations. The timing of the initial assessment (before the winter holiday) was probably problematic since participants appeared to experience low distress rendering the intervention vulnerable to floor effects. Unfortunately, due to time management issues this was the only period available. In comparison to the previous studies where participants were unlikely to know each other, it emerged that some participants were

acquainted. This introduced the thread of cross-contamination and since the participants were randomly assigned to groups it was not possible to control this. The dropout percentage of this study was similar to that of Study 1 (23.5%). This percentage was slightly larger to the one reported in review studies of occupational stress management (e.g., 16.5% Richardson & Rothstein, 2008). It is notable however that 13.23% of participants that withdrew, dropped-out early (without completing the first assessment) due to not been able to accommodate the training in their schedules. Indeed, this reflects a barrier of conducting research in organisations in that work responsibilities and obligations might take priority over research participation.

In conclusion the findings of the present study are less encouraging than the previous two investigations. However, it seems that the intervention probably resulted in a prophylactic effect for the intervention group at one-month post and although it is difficult to clarify how this effect emerged, it nevertheless provides support that an ACT intervention may be useful for this population. Further considerations are discussed in a general discussion section.

5. Content analysis of participant feedback

5.1. Overview of coding

The material consisted of electronic feedback provided by participants in the intervention group. Written feedback was collected at two months post intervention following the final questionnaire completion. Fifty-seven participants completed written feedback of various lengths (ranging from one sentence to several short paragraphs). The text was sorted into two content areas, namely, information regarding practice/development of ACT skills and observed impact of training. The development of the coding categories was influenced by two sources; initially, with regards to the impact of the intervention the researcher sought to categorize the content with reference to ACT theory. Secondly, after having examined participants' feedback from Study 1 the researcher had developed tentative categories concerning factors that may have affected the impact of the intervention. Additionally, the researcher read the data several times and where necessary, categories were added or modified. The resulting analysis contains seven categories further divided into 37 subcategories. The data was subjected to inter-rater reliability analysis and resulted in 96.5%

agreement between two coders[10]. The reader can refer to Appendix 14 (pp. 211-232) for a detailed illustration of the analytical process and individual codes.

On occasions where a selection of sub-categories seemed to reflect a crossover meaning, themes were developed based on guidelines by Graneheim and Lundman (2003). In order to develop an understanding of the gravity of categories and subcategories, coding frequencies were transformed into percentages. The researcher urges caution concerning the interpretation of these percentages given that the total number of respondents was 57. For the actual frequency of coding counts the reader can refer to the tables in text (see table 19, p. 119; table 20, p. 122; table 21, p. 125). Each participant's response was counted once in each subcategory category even if he referred to the same content more times in his answer.

5.2. Content area 1: Information regarding practice/ development of ACT skills

This content area sought to address the research question: *How do participants approach the skills introduced in the training post intervention? What hinders or facilitates this process?* The analysis resulted in four categories, namely: timing of practice, reasons for practice, engagement with training ideas, and conditions affecting engagement. Table 19 (p. 119) outlines the three first categories (i.e., timing of practice, reasons for practice, and engagement with training ideas) alongside identified subcategories, examples of codes and the frequency of each subcategory. Table 20 (p. 122) outlines the fourth category (conditions affecting engagement) alongside relevant subcategories, their frequencies and examples of the codes. The cross-over themes for this category are also noted on the table.

Timing of practice. This category gives an indication of the occasions that participants attempted to practice the formal mindfulness exercises introduced in the intervention. A small number of participants (16%) indicated situations in which they tended to practice the exercises. Two situations were mentioned; specifically, whilst travelling (9%) and before going to sleep (7%). A participant stated *"practicing on the tube helps"* and another wrote *"I practice by listening to the tape in the evening before going to sleep."* None of the participants mentioned dedicating a specific time to practice mindfulness exercises. This observation suggests that it is possible that participants attempted to fit the mindfulness

[10] The data was firstly analysed by the primary researcher. The second coder was given the list of codes and was asked to sort them into the pre-existing categories to define agreement. Upon completion disagreements were discussed and re-arranged.

exercises around their daily routine without making alterations to their schedule to accommodate practice.

Engagement with training ideas. This category reflects the extent by which the participants engaged with either mindfulness exercises or with ideas introduced in the training. The term 'engagement' was used to reflect a range of content, from formal practice (formal mindfulness), to thinking about the training or applying skills in daily life (informal mindfulness). Specifically, Kabat-Zinn (1993), an influential figure in the introduction of mindfulness training for physical health problems, made a distinction between 'formal' and 'informal' mindfulness practice. According to Kabat-Zinn, formal mindfulness practice involves repeated use of mindfulness exercises (e.g., audiotapes) with the aim of developing one's ability to stay focused (e.g., focusing on one's breath). On the contrary, informal practice is less structured and it involves reminding oneself to concentrate on the present moment whilst engaging with daily tasks. It is notable that the present category ('engagement') mainly reflects participants' efforts to engage with formal mindfulness practice (audiotapes of mindfulness exercises). The analysis of the 'engagement' category indicated five subcategories.

Of these, three subcategories (i.e., systematic engagement, sporadic engagement and no engagement) resulted in the same frequency (19%). To demonstrate the differences across these three subcategories it is useful to refer to participant quotations. For instance, a participant whose comment was coded as 'systematic engagement' stated *"I really stuck to listening to the CD for over 4 weeks and every evening"*. It is noteworthy that in this subcategory participants refer to incorporating the skills in their daily life and a majority of them mention consistently using the audio exercises. In contrast, a participant who indicated 'sporadic engagement' wrote, *"I used the exercises a few times, but nowhere as much as I intended"*. In general, participants in this subcategory referred to engaging with the skills in a haphazard manner or stated that they had tried the skills but did not pursue further development. Finally, a participant whose response was coded in the 'no engagement' subcategory wrote *"I haven't done the exercises recommended once"*. Participants in this subcategory indicated that they never tried the skills or exercises introduced in the training.

Smaller numbers of participants indicated that they engaged with the skills 'indirectly' (i.e., they were thinking of the skills rather than practicing the mindfulness exercises; 5%). Indeed,

this subcategory appears to have some similarities to Kabat-Zinn's definition of informal mindfulness. However, it remains unclear whether by thinking of the skills the participants subsequently reminded themselves to concentrate more on the present moment. Other participants stated that they engaged with the skills initially (i.e., shortly after the training) and 'interrupted' after some time (7%). For example a participant whose response was coded as 'indirect engagement' noted *"I have tried to remind myself of the basics behind the technique"* whilst a participant whose response is representative of 'interrupted engagement' stated *"I practiced every evening for 5 days after the course and then pretty much stopped"*. Taken as a whole these observations suggest that a large portion of the participants (count of 39%) either never engaged with the skills in question or did not invest in them in a systematic manner.

Reasons for practice. A small number of participants, who mentioned practicing the skills, also indicated their reasons. Two participants (4%) mentioned trying out the skills to 'enhance concentration'; a participant wrote *"I use the skills mostly at work, especially when trying to concentrate on tedious tasks..."* Five participants (9%) indicated using the skills to 'better manage uncomfortable experiences; one of the participants whose response was coded in this subcategory stated *"I now really watch whether I am feeling uncomfortable or feel I cannot get away from my thoughts. The moment that happens I practice the exercises more consistently."*

Table 19

Categories, subcategories, and examples of codes from content analysis of electronic feedback regarding the practice/ development of ACT skills post intervention.

Categories	Subcategories and frequency of instances (in brackets)	Examples of codes
Timing of practice	Travelling (5)	Train to/from work Tube
	Before sleep (4)	Before sleep
Engagement with training material	Systematic engagement (12)	Listening to the CD Practiced the exercises/ daily Reading notes

	Indirect engagement (3)	Applied skills obliquely Remind myself of techniques Think about the learning
	Interrupted engagement (4)	Bit after the training Stopped
	Sporadic engagement (11)	From time to time At times Few times Not in a systematic way In a limited way Tried it
	No engagement (11)	Haven't done exercises Not practicing
Reasons for practice	Enhancing concentration (2)	To concentrate on tasks To be more focused
	Managing uncomfortable experiences (5)	If feeling tense To help myself Can be relaxing

Conditions affecting engagement with skills. A large group of participants referred to factors that they considered influential in engaging with the training skills. Whist developing these subcategories the researcher identified three themes that appeared to cross over some subcategories (see Table 20). The first overarching theme was 'motivation'. This theme appears to cross over eight subcategories having either a clear or an implicit link to motivation. These subcategories are: low priority, enthusiasm, forgetfulness, need for reinforcement, need for perseverance, mood, requiring proof and reinforcing factors. The subcategory of low priority (14%) incorporated content such as practicing being sidelined by other priorities. As an example a participant wrote *"it felt like just one more thing to do and it went to the bottom of the pile because it was not urgent"*. An equal number of participants (14%) indicated a need for reinforcement to keep using the skills; participants wrote about how a one-day training was not sufficient to encourage continuous engagement and that, for example, a follow up session would have been beneficial. A participant stated *"I think I might have a follow up day. I would maybe give out a practice schedule/sheet..."*

A smaller group of participants (12%) stated that they found themselves forgetting about the ideas/skills introduced in the training, a participant indicated *"sometimes I used the skills well and other times forgot to use"*. Nine percent of the participants wrote about how they

required proof of the skills effectiveness (possibly implying a potential increase in their motivation if they were more certain that their efforts would be worthwhile). Indicatively, a participant stated *"the theory sounds great but I have never really experienced any personal effect, however, given that I have never really tried, I know this is a prejudgment that unless I find time to dismantle by practicing those skills it will stay with me forever"*. A smaller subcategory (7%) observed that the skills required a great deal of perseverance; a respondent wrote *"I found it hard to keep going at the beginning, as some of my usual avoidance mechanisms kept getting in the way"*. Fewer participants wrote about experiencing a drop in their enthusiasm with regards to the skills (4%) and others observed that the extent of their formal mindfulness practice varied depending on their mood (5%). For example a participant wrote *"often... I was feeling too negative and lost in my feelings to do the exercises"*. Only five percent of the participants mentioned factors that reinforced their willingness to practice or apply the skills. These reasons involved motivation to gain new skills, make changes, or improve their lives. Taking these subcategories as a group, the results suggest that the intervention may not have been sufficient to induce a high level of motivation in participants so that they would persevere with the skills. In fact, participants' responses suggest a sense of effort attached to trying out and applying these skills; effort that the majority of participants did not seem ready to invest. This could be indicative of the preventative nature of the intervention, in that, perhaps participants were not experiencing a pressing need to practice. In fact, the means of depression, anxiety, and stress scores were within normal (to mild) levels at baseline for Studies 1, 2, and 3. As eloquently stated by a participant, *"I didn't practice cause I am going through an emotionally stable period of my life"*.

Whilst exploring the conditions affecting participants' engagement with the training skills, two additional themes were identified. In detail, the first theme, named 'practicalities as barriers to practice' was created to encompass daily life complications that hindered participants' capacity to engage with the training skills. Two subcategories were included in this theme, namely, 'participants' personal circumstances' (i.e., time, coursework, tiredness, ill health) and limited 'privacy'. A notable forty-seven percent of participant stated that 'personal circumstances' were a central barrier to skill investment. For instance, whilst describing a barrier to practice, a participant stated *"mostly time to listen to the CD. Have been working an excessive number of hours and having the time to just sit and listen to the CD was hard"*, another participant wrote *"I find that the time is often quite full, particularly having four assignments ongoing during two months since the training, plus the Christmas*

period and being unwell". A much smaller percentage (5%) mentioned finding it difficult to find a private space to practice the mindfulness exercises.

The final theme in this category was labelled 'challenges with application' and it incorporated subcategories that included difficulties with regards to practicing the skills or exercises (i.e., lack of focus, difficulties, and personal preferences). A discussion took place between the researcher and the second rater regarding the inclusion of the 'personal preferences' subcategory here. Eventually it was decided to include this subcategory under the assumption that disliking the skills or feeling uncomfortable whilst practicing would introduce an inherent challenge in their application. Overall, 15% of the participants gave answers that were coded within this theme (i.e., difficulties 7%, lack of focus 5%, personal preferences 5%).

In sum, the analysis of the first content area, namely information regarding practice/ development of ACT skills suggests that participants encountered difficulties of a varied nature when it came to independently practicing ACT skills. Lack of motivation came out as an influential theme, as were practical barriers and particularly lack of time. A substantial portion of participants seemed to engage with the skills more intently (19%), however, the large majority revealed sporadic or no practice, alongside a long list of difficulties and barriers concerning skill development.

Table 20

Conditions affecting engagement with skills (category), subcategories, frequencies and examples of codes from content analysis of electronic feedback regarding the practice/ development of ACT skills post intervention.

Category	Subcategories and frequency of instances (in brackets)	Examples of Codes	Crossover theme
	Low priority (8)	More effort needed Hard to motivate One more thing to do Did not get round to it	
	Enthusiasm (2)	Enthusiasm lost	
	Forgetfulness (7)	Forgot	

		Need reminding	
Conditions affecting engagement with skills	Need for reinforcement (8)	One meeting not enough More sessions needed Follow-up session needed Need reinforcement	Motivation
	Need for perseverance (4)	Required practice Hard to keep going Need for discipline	
	Mood (3)	Depending on mood Emotionally stable	
	Requiring proof (5)	Pre-judgment about seeing effect Need practical examples Tried...didn't worked	
	Reinforcing factors (3)	Motivated Wanted different way of dealing with difficulties	Motivation
Conditions affecting engagement with skills (...continued)	Personal circumstances (27)	Time Coursework Tiredness Ill health Holiday	Practicalities as barriers to practice
	Privacy (3)	Embarrassed Hard to find privacy	
	Difficulties (4)	Exercises are difficult	Challenges with application
	Lack of focus (3)	Hard to focus	
	Personal preferences (3)	Exercises not my thing Don't like exercises	

5.3. Content area 2: Impact of training

This content area sought to explore the impact of the training seeking to answer the research question of *"what did the participants observe to be the impact of the intervention, if any?"* The analysis of this area resulted in four large categories with several subcategories. The categories were: cognitive/emotional impact, action, suppression agenda, and narrow impact. The crossover theme of 'increased psychological flexibility' was identified for the first two categories that were representative of ACT's model of psychopathology. In combination, the two categories reflect elements of six ACT processes, that is, present moment awareness, acceptance, defusion, values, committed action, and self as context (Hayes, Luoma, Bond, Masuda, & Lillis, 2005) –in this regard the selection of the thematic label was theory led. The reader can refer to Table 21 (p. 128) for an overview of categories, subcategories, frequencies and examples of codes.

Cognitive/Emotional impact. [Theme: psychological flexibility]. A number of participants noted how the training had impacted them on a cognitive and/or emotional level. The label was chosen as a number of participants mention cognitive and emotional changes simultaneously. The category is divided in four subcategories, namely, increased awareness, acceptance, defusion, and impact on mood. The first subcategory, 'acceptance' reflects an increase in willingness to notice emotions and thoughts. Thirty two percent of the participants stated that they observed a shift in this perspective. As indicative of this subcategory, a participant stated *"it has helped me recognize that all of my thoughts and feelings are important and necessary to make me who I am and although some things are worse or more difficult to deal with than others they are all part of the experience"*. The second subcategory, 'increased awareness' reflects the ability to be consciously aware of one's experience in the present, be it thoughts, emotions, or behaviour. A smaller percentage (19%) stated that the training had facilitated an enhancement in awareness; a participant stated *"I noticed an overall awareness of my thoughts and how I am using and handling them"*. The same number of participants (19%) also observed a shift in the way they related to their cognitions. The researcher labelled this subcategory 'defusion' –a term borrowed from ACT psychopathology model- as it is representative of an increase in the ability to make a distinction between experience and thought content. For instance a respondent wrote *"I try to distance myself from my thoughts and see unpleasant thoughts and worries as what they are: thoughts and not reality"*. Within the same subcategory, a number of participants referred to

the 'chessboard' metaphor that was introduced in the training and how that had facilitated an ability to differentiate their cognitive content from themselves; a participant said *"I remember that I am a chessboard, not a piece"*. The final subcategory 'impact on mood' was mentioned by 7% of the participants and mainly referred to an increase of a sense of calmness and tranquillity.

Action. [Theme: psychological flexibility]. This category reflects an impact on participants' behavioural repertoire. This category is indicative of ACT's theoretical concepts of committed action and values (Hayes et al., 2005). The category was further divided in three subcategories, specifically, dealing with situations, reduced avoidance, and value-orientated behaviour. The first subcategory, 'dealing with situations' reflected an observed increase in one's ability to engage with challenging situations. Eighteen percent of the participants made this observation; a participant wrote "now that I am clearer about my values...I am more able to navigate my way through these situations rather than being overtaken by my emotions". Another subgroup of participants (12%) spoke about being less avoidant; someone stated "I am aware of trying to deal with things rather than push them away...it is my natural behaviour to bury my head in the sand rather than face things!" The final subcategory incorporated references to value-orientated behaviour, that is, steps taken, changes made or re-evaluation of goals to align with values. Eleven percent responded in this category. For example, a participant wrote "as a result of clarifying my values, I have realised that the direction of my job was not in the right direction of my own values...I have resigned to pursue work in an area more aligned with my values".

Suppression agenda. This category indicated attempts to suppress thoughts or emotions. Some participants' statements reflected an expectation to use the mindfulness exercises to achieve more successful suppression. The frequency of this category reflected that 11% of participants expressed this view. The emergence of this category is interesting given that the training encouraged participants to give-up suppression. This may be indicative of a misinterpretation of the concepts introduced on the training, memory limitations, or even difficulty to grasp a paradoxical concept such as 'acceptance' during a short-lived intervention.

Narrow impact. This final category was developed to incorporate responses from participants stating that they did not experience any specific effect as a result of the training.

In fact, 16% of the participants observed that they were either uncertain of any impact or identified little or no impact.

In summary, reflecting on the analysis of this content area one can infer useful observations. Participants' comments in the first two categories reflected ACT's hypothesized processes of change. There was a high frequency of codes across these categories, indicating that a number of participants retained the concepts at two months post. The emergence of the 'suppression agenda' category is noteworthy. The frequency of codes for this category was much less common however this category may be symptomatic of the difficulties involved in a one-day intervention. Finally, the emergence of the 'narrow impact' category may also suggest that the intervention was not powerful enough to leave a lasting impact on all participants.

Table 21

Categories, subcategories, frequencies, crossover themes, and examples of codes from content analysis of electronic feedback regarding the impact of ACT training on participants' life.

Category	Subcategories and frequency of instances (in brackets)	Examples of Codes	Crossover theme
	Acceptance (21)	Feel emotions without reacting Thoughts/feelings are important Alternatives to distracting self Living with thoughts Accept feelings/thoughts Tolerate discomfort Not fight with thoughts Experience what is going on Not avoiding feelings and thoughts	
COGNITIVE/ EMOTIONAL IMPACT	Increased awareness (11)	Conscious/aware of thoughts Think/aware of reactions Self-awareness	Psychological flexibility
	Defusion (11)	'stepping back' Observing thoughts/emotions Chessboard not piece	
	Impact on mood (4)	Serenity/tranquility Calm Less anxiety	
ACTION	Dealing with situations (9)	Navigate difficult situations Relaxed in difficult situations Resolve problem Applied skills in difficult situations	
	Reduced avoidance (7)	Do what I need to Dealing with things Not using excuses to stop me Helpful with inactivity	Psychological flexibility (...continued)

	Value-orientated behaviour (6)	Moving towards values Sense of direction Able to make time for tasks Reinventing goals
SUPPRESSION AGENDA	(6)	To distract thoughts Thinking something different Switch off mind Avoid feeling
NARROW IMPACT	Uncertainty (3)	Not sure Wonder if some effect
	Limited impact (3)	Little A bit
	No impact (3)	None Cannot see impact

Chapter 4

General Discussion

1. Introduction

Prevention research in educational and occupational organisations has accumulated a substantial evidence-base involving the administration of a 'second wave' CBT stress management intervention (Johansson 1991; Martin et al., 2009). In recent years however, CBT has seen the emergence of a new group of therapeutic models with a different theoretical and philosophical background known as the 'third wave' (Hayes, 2004). Acceptance and Commitment Therapy (ACT) is an influential 'third wave' approach that is successfully broadening its research efforts into the field of prevention (e.g., Bond & Bunce, 2000; Livheim, 2004). However, investigations in this area are few and there have been calls for further research (Biglan et al., 2008). The present thesis was designed to promote research in this field. In addition, it aimed to implement mediation analyses to reveal the psychological mechanisms underpinning the proposed intervention as recommended in the stress management and CBT literatures (Bunce, 2007; Martin, et al., 2009).

This chapter is organised into four sections. The first section summarises the main findings of three preventative ACT interventions conducted for two different populations and discusses these findings whilst reflecting on participants' qualitative feedback. The second section considers potential research limitations whilst the concluding two sections note recommendations for improving preventative ACT initiatives and the implications of the present study for counselling psychology.

2. Summary of findings

Following a series of studies that fruitfully administered ACT as a preventative intervention in organisational settings (e.g., Flaxman & Bond, 2006; Livheim, 2004), Studies 1 and 2 sought to examine this model's effectiveness as a brief preventative intervention for university students whilst Study 3 sought to administer a brief ACT intervention for university employees. The findings of each study are briefly explored in individual discussion sections in Chapter 3. This section seeks to examine the main findings of the three investigations collectively. In brief, the findings of Studies 1 and 2 offered some support for the efficacy of ACT as a preventative intervention for university students whilst Study 3 resulted in less encouraging findings. In Study 1 the intervention group experienced moderate

improvements on depression, stress, and anxiety in comparison to the waiting list at one month post intervention. In addition, there was evidence of partial mediation through ACT-consistent processes. However, these findings were not maintained two months later. Comparably, Study 2 resulted in somewhat different findings in that an ACT intervention exerted a large beneficial effect on mental health outcomes two months post intervention (on stress, anxiety, and psychological well-being); an effect that was mediated by ACT processes. Although between-group differences did not emerge as significant on the depression scale, the effect size of between-group differences on this measure was large at two months post suggesting some differential improvement for the intervention group. Study 2 also resulted in a significant group by time interaction on anxiety from baseline to two months post indicating that the waiting list deteriorated in comparison to the intervention group on this measure. The findings of Study 3 indicated a significant group by time interaction at one month signifying deterioration on stress and psychological well-being for the waiting list group. There was no evidence of ACT-consistent mediation in this study.

It is useful to consider the three studies collectively as a way to highlight similarities and inconsistencies in research findings. Studies 1 and 2 are considered together as they were both conducted with a student sample. A comparable examination of these studies suggests some disparity on the timing of the main outcome findings since in Study 1 between-group differences emerged at one month whilst in Study 2 they surfaced at two months post intervention. A reflection on the research procedure indicates that this may be the result of history effects. In detail, Studies 1 and 2 were carried out during different time periods. An examination of the yearly calendar suggests that one of the assessment points for Study 1 coincided with an academically demanding period. Indeed, the assessment at one month occurred at the end of an academic year and may have overlapped with deadlines for written assignments for postgraduate students (62% of participants were postgraduate students) whilst the assessment at two months occurred during the summer holiday. It is thus conceivable that between-group differences observed at one month were due to the fact that the intervention group was less affected by the stressors introduced at that time period. It is difficult to ascertain why this effect was not maintained at two months however. One possibility is that participants in Study 1 may have not experienced the need to practice ACT skills during the summer holiday and therefore their responses on mental health variables regressed to the mean. Briner and Reynolds (1993) argued that short-lived improvements for the intervention group in stress management interventions may be indicative of a non-specific

'feel good' factor rather than a true effect. Indeed, this explanation could be put forward with regards to the findings of Study 1. It is noteworthy however, that the between-group differences at one-month were partly explained by ACT-consistent mechanisms thus providing evidence against this argument.

Moreover, in Study 2 the assessment at one month overlapped with the winter holiday period whilst the assessment at two months occurred during a university exam phase. In view of these time variables, it is possible that the lack of a between-group difference on main outcome variables at one month was due to participants in both groups experiencing improvements in mental health during the holiday. Similar history effects pertaining to the winter and spring break were reported by Livheim (2004) who conducted a preventative ACT study in secondary schools. Taking the findings of Studies 1 and 2 in combination, it is possible that participants in the intervention group benefited during a demanding period however this effect lessened during periods when they were not presented with increased demands (i.e., summer and winter holiday). In support of this hypothesis in the qualitative feedback some participants noted that they found themselves neglecting the skills during holiday periods. This interpretation is in accord with Lazarus and Folkman's (1984) conceptualisation of stress as an imbalance between demands and resources. In view of a theoretical emphasis on the exchange between external pressures and internal resources, it transpires that it may be difficult to appreciate the effects of a preventative intervention during a period of reduced demands. This explanation is consistent with the thesis's aim of offering a preventative rather than a curative intervention, an expectation that was materialised given that participants' level of distress in both Studies 1 and 2 was normal to mild at baseline. Bunce and Stephenson (2000) argued against conducting preventative studies of this nature by demonstrating that participants with low distress at baseline may dilute intervention effects. Although there is a possibility that the present data were affected by similar barriers, nevertheless the effect sizes on between-group differences in these studies were moderate to large suggesting that the intervention benefited participants at certain time points.

In view of the similar population characteristics in Studies 1 and 2, it was considered that merging and analysing the collective data from the two research efforts could provide further insights as to the effects of a one-day ACT intervention. Indeed, this strategy would result in an increased sample size and potentially enhance the statistical power of the subsequent

statistical procedures. Nevertheless, this tactic did not result in statistically significant interaction effects between the intervention and waiting list groups over time, and nor did it indicate significant between-group effects at one month or at two months post intervention. It transpired that this statistical strategy was limited by the dissimilar history effects that had affected Studies 1 and 2 thus resulting in meaningless findings. Consequently, the strategy of merging the quantitative data across Studies 1 and 2 was abandoned.

The main findings of Study 3 were notably different from Studies 1 and 2. In detail, the intervention group did not experience any improvements in mental health over time (across outcome variables). However, there was a significant group by time interaction at one month on anxiety and psychological well-being suggesting that the waiting list group's mental health had deteriorated. Several explanations may illuminate the lack of improvement of the intervention group over time. Primarily, this may be an indication that a one-day ACT intervention impacts differentially on an employee sample in comparison to a student sample. The most pronounced differences in the sample characteristics between students and employees were age and marital status. As expected, in the two studies that recruited students most participants belonged to the age range of 18-30, whilst in Study 3 with an employee sample the age range was much more widespread though the majority of participants represented the age range of 41-60 (48%). In addition, 75% of the participants in the employee study were either married or in a long-term relationship, compared to 28% for the students (Study 2). This suggests that a brief ACT intervention may be more appropriate for younger individuals, with potentially fewer family obligations. Nevertheless, other studies in the workplace with similar sample characteristics to those of Study 3 reported beneficial outcomes for an ACT intervention (e.g., Flaxman & Bond, 2006; Hayes et al., 2004). However, there were some important differences in those studies. For instance, Hayes et al.'s (2004) intervention was administered to counsellors who may have been more familiar with psychotherapeutic concepts, whilst Flaxman and Bond's (2006) interventions were longer in duration. Thus it is possible than an employee sample may benefit from a slightly longer intervention.

Another possible explanation for the lack of improvement of the intervention group in Study 3 is that at baseline participants reported low levels of distress potentially resulting in a floor effect in subsequent measurements (Everitt, 2002). In detail, at baseline only 28% of participants in Study 3 were above the clinical cut-off on the general health questionnaire in

comparison to a sizeable 51% in Study 2 with a student population. This hypothesis is supported by other studies in the workplace which found beneficial impact of a brief ACT intervention only for participants that experienced higher distress at baseline (Brinkborg & Michanek, 2009; Flaxman & Bond, 2006). Furthermore, similar to Studies 1 and 2, this investigation also seemed to have been influenced by history effects. The high levels of mental health at baseline for both groups may have been the result of this measurement taking place near the winter break when participants may have been under less pressure. In addition, just as in Study 1 the interaction effect observed at one month may have been a prophylactic effect of an ACT intervention. An examination of the yearly calendar and discussions with participants indicated that the assessment at one month coincided with a busy time for university employees involving corrections of assignments and increased administrative tasks.

Collectively, the significant between-group differences and interaction effects observed in these three studies are consistent with previous studies supporting ACT's effectiveness as a preventative intervention in the workplace and in schools for various mental health outcomes (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006; Hayes et al., 2004; Livheim, 2004). However the findings of the present investigations were less pronounced since group by time interaction effects were limited to specific measures and time points and in addition, in Studies 1 and 3, there was limited evidence of the durability of an effect over time. The present studies introduced a one-day format, contrary to the design of other preventative ACT investigations which delivered the intervention over three sessions (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006; Livheim, 2004). It is thus conceivable that a one-day intervention may not have been sufficient to exert a long-lasting effect. Flaxman and Bond (2009) posit that a repeated session format gives participants the opportunity to reinforce the learning, a prospect that was not available in the present study. Moreover, this explanation is consistent with participants' comments that the one-day format was not sufficient. In support of this, Stavenow (2008) compared the outcomes of a twelve-hour to a nine-hour ACT training conducted by Livheim and found that a longer format may be more efficacious. Nevertheless, another group of studies administering ACT as a one-day intervention for substance abuse counsellors found significant intervention effects maintained at three months follow-up (e.g., Hayes et al., 2004; Pierson et al., 2004; Varra et al., 2006). However, these studies were different in that they did not aim to improve participants' mental health but mainly concentrated on assessing the intervention impact on outcome variables that

responded to the work characteristics of substance abuse counsellors (e.g., stigmatising attitudes, use of evidence-based treatments). Additionally, the training protocol in these studies was specifically designed to address population-specific difficulties (e.g., best counselling practice). Contrarily, the present investigations concentrated on administering generic mental health scales whilst the training adhered to a general ACT protocol. This is not to argue that a general mental health preventative intervention is inappropriate, however, a one-day format maybe less suitable in this regard.

An examination of participant's feedback across studies highlighted additional reasons for which the intervention effects may have fell short of expectations. For example, participants wrote about the extent of their engagement with the ideas introduced in the training. Indeed, the question of whether participants continue to practice the skills introduced in stress management programs has been raised early-on in the literature (Murphy, 1984). It is interesting that a large percentage of participants wrote about not practicing the skills consistently after the training (39%). In detail, many participants spoke about practicing the skills sporadically whilst others wrote that they practiced the skills initially but interrupted soon after. In view of these observations, it is possible that participants were aware of and more motivated to practice the skills for a short period after the training. This proposition may better explain why intervention effects were more notable one month after the intervention in Studies 1 and 3 but were not maintained at follow-up.

Interestingly, whilst exploring the factors affecting participants' post intervention practice the researcher noticed that motivation seemed to be of essence. Participants wrote about how they soon forgot about the material made available, and many of them highlighted that one session did not seem enough or that they required further reinforcement. Again, these observations are consistent with the quantitative findings of these studies. It is possible that participants did not engage with the skills continuously during periods of low motivation (i.e., during holidays) only to return to them during challenging periods. That is, it is possible that in Study 2, participants may have felt more motivated to apply the skills for a longer period in view of the upcoming university exams thus benefiting from the intervention two months later. These observations better explain why the present findings were less pronounced to those reported by longer preventative ACT investigations as it is likely that through meeting participants more than once these studies induced auxiliary motivation for continuous practice (e.g., Flaxman & Bond, 2006; Livheim, 2006).

A parallel issue that is worth noting here pertains to participants' statements that practicing ACT skills did not take priority in their busy schedules. This may be related to the fact that participants that volunteered for these studies expressed normal to mild distress levels at baseline and thus working towards improving their mental health may have not been a priority. This echoes Reynolds and Briner's (1994) concern that programs targeting participants with low distress maybe inappropriate as one cannot expect meaningful change. Nevertheless, a research design aiming to include only participants with above average level of distress could be ethically questionable since it could stigmatise individuals and disappoint others interested in the intervention. Interestingly, in a study administered to a clinical and to a general student population Stavenow (2008) found that participants' from a clinical sample were more likely to practice the skills post intervention and reported more satisfaction with the program. Nevertheless, whilst examining participants' post intervention comments in a similar ACT investigation administered to a general student population Livheim (2006) observed that the large majority of participants reported satisfaction whilst a smaller group stated that they had not practiced the skills and nor did they observe benefits. The findings of the present studies are mixed in that although a large percentage of participants reported satisfaction with the training the majority observed little motivation to practice the skills at post. This introduces questions about what differentiates participants that benefit from this type of intervention to those that do not. Unfortunately, due to the small sample size in the present studies it was difficult to ascertain whether participants that were more distressed at baseline and perhaps more motivated to practice the skills benefited from the intervention more. This is a possibility that is suggested by the quantitative findings, since in Study 2 where participants were slightly more distressed at baseline the intervention effects were more notable. In another ACT investigation in the workplace, Flaxman & Bond (2006) reported that participants with low distress at baseline were found to be diluting intervention effects and when this subgroup of participants was removed from the statistical analyses the findings were more pronounced. However, Saunders et al. (1996) demonstrated that stress management interventions can be equally beneficial for participants with low and high distress at baseline. Therefore one can assume that the intervention effects are probably also affected by additional variables such as participants' motivation to practice, work/study schedules, and personal priorities. Indeed, in a stress management intervention for students, Shapiro et al. (1998) found that post intervention treatment compliance was the main

predictor or intervention outcomes. Future research might benefit from examining moderating variables of this nature.

The second aim of the present series of studies was to explore the mechanisms by which an ACT intervention may exert its effects. A selection of variables deemed as ACT-consistent were introduced as potential mediators and entered into multiple mediation models to examine total and specific mediation effects. Specifically, ACT theory posits that psychological change is mediated via increases in participants' psychological flexibility; that is, the ability to accept internal experiences in the present moment and to pursue behaviours that are in line with long term values (Hayes et al., 2006). Psychological flexibility is said to be composed by six intertwined processes consisting of acceptance, defusion, contact with the present moment, self-as-context, values, and committed action (Hayes et al., 2006). The findings of Studies 1 and 2 provided some support for the ACT mediation hypothesis. In Study 1 there was evidence that the intervention effect on anxiety and stress was partly mediated by reduced believability of negative automatic thoughts and increases in psychological flexibility when these processes were entered together in multiple mediator models. Only automatic thought believability explained unique variance in the total model for stress whilst on the anxiety scale, none of the mediators explained unique variance within a multiple mediator model. It is interesting that on the anxiety scale neither process explained unique variance in the total model. This finding may indicate that psychological flexibility and reduced thought believability are conceptually overlapping variables. Indeed, Preacher and Hayes (2008) advise that whilst it is useful to apply multiple mediator models, it is likely that highly interrelated variables may fail to explain unique variance in combined models. Nevertheless, Study 1 provided stronger evidence of mediation via reductions in automatic thought believability since this variable emerged as a mediator in single mediation analyses for these variables as well. Reduced thought believability was expected to reflect the concept of defusion and mirror a changed perspective in how participants responded to adverse cognitions (Hayes et al., 2006). That is, by experiencing adverse thoughts as mental events rather than equating them with experience, participants may have felt better equipped whilst dealing with external pressures. These findings provide support for an ACT mediation hypothesis and are consistent with previous studies. For example Hayes et al. (2004) and Varra et al. (2006) also found evidence that reduced thought believability acted as a mediator in brief ACT investigations.

The author raised some concerns with regards to the validity of the negative automatic thought believability scale used in Study 1 however. Indeed, there was a high correlation between this scale and a negative automatic thought frequency scale that was used in parallel; though this was expected in view of item similarity across the two scales. Flaxman & Bond (2006) reported difficulties in the administration of a dysfunctional attitude believability scale, as participants reported confusion with regards to the meaning of the believability scale. Nevertheless, participants in the present study did not question the believability scale and nor did they express concerns on the online questionnaire completion forum. The measure was also piloted with a small number of respondents who also did not comment on this scale. Zettle and Hayes (1986) used a similar negative automatic thought believability scale in an older investigation without reporting problems. Unfortunately, Hayes et al. (2006) did not discuss whether the two variants of the scale were highly inter-correlated and what the meaning of this relationship might be in terms of construct validity. Indeed, given that in ACT the frequency of thoughts is not important, researchers often tend to administer thought believability scales without measuring thought incidence in parallel (e.g., Gaudiano & Herbert, 2006; Gregg, 2004; Hayes et al., 2004). When researchers do administer frequency scales the results are ambiguous. Flaxman & Bond (2006) reported that participants of an ACT intervention experienced significant reductions in the frequency of dysfunctional attitudes post intervention, whilst Bond and Bunce (2000) did not report this finding.

It is interesting that certain authors suggested that questionnaires that assess the frequency of dysfunctional cognitions or negative automatic thoughts may not measure the incidence of these experiences but rather the extent of participants' conviction in those attitudes (e.g., Sheppard & Teasdale, 2000; Wenzlaff, Rude, & West, 2002). This perspective is compatible with ACT theory, which assumes that it is not the presence of thoughts that is problematic but rather the context in which these thoughts are experienced (Hayes et al., 1999). That is, if thoughts are perceived in a context of literality they may be more harmful than if they are appreciated as merely expressions of language (Hayes et al., 2006). In view of this, it is possible that a frequency scale and a believability scale may be more similar than previously thought. It would be beneficial if future research projects concentrated on examining the construct validity of believability scales to further confirm their utility as mediators. In addition the ACT community would benefit from constructing a well-designed and validated cognitive fusion scale. Indeed, Dempster, Bolderston, Gillanders, and Bond (2009) are currently in the process of developing a Cognitive Fusion Questionnaire that could bridge this

literature gap. The current conclusion that the intervention may have partly emanated its effects via enhancing participants' ability to defuse their thoughts was supported by participants' feedback however. A notable percentage of respondents stated that they had noticed an altered relationship with their thoughts. They stated being able to observe rather than directly act on their cognitions and some mentioned recalling the chessboard metaphor as an aid in defusion attempts.

The mediation findings in Study 2 were similar. The between-group differences on the stress scale at two months were partly mediated by increases in psychological flexibility and mindfulness in the context of a multiple mediator model. None of these two variables showed evidence of explaining unique variance in this model though mindfulness emerged as a partial mediator in a single mediator analysis. Equally, differences in participants' psychological well being (GHQ-12) at two months were fully mediated by increases in psychological flexibility and mindfulness, though only mindfulness explained unique variance in this multiple mediator model. Both variables emerged as full mediators in single mediation models. As with Study 1, the results support an ACT mediation hypothesis. An interesting finding is that on one of the outcome measures (stress) none of the two variables (psychological flexibility and mindfulness) explained unique variance in the total model. This is probably a reflection of a high inter-correlation between variables, which may have prevented the emergence of differential effects in the context of a multiple mediation model (Preacher & Hayes, 2008).

Arguably, it is expected that a measure of psychological flexibility and a measure of mindfulness may have conceptual similarities. However, in a multiple mediation analysis on the general health questionnaire, mindfulness explained unique variance in the total model whilst psychological flexibility did not. This is puzzling since psychological flexibility is said to reflect a broader concept by incorporating the constructs of values and committed action (Bond, Hayes, and Barnes-Holmes, 2006). Nevertheless, it is worth considering that whilst previous measures of psychological flexibility reflected an acceptance factor and an ability to take action factor (AAQ-I), the scale that was used in this study was designed to reflect a unified construct of psychological flexibility (Bond & Bunce, 2003; Bond et al., submitted). Additionally, the current measure of psychological flexibility (AAQ-II) is shorter and may not capture the broad spectrum of processes as longer versions might have. Furthermore, the mindfulness questionnaire introduced in this study was developed to capture a broad

construct incorporating processes that largely overlap with the ACT psychotherapeutic model such as mindful presence, non-judgemental acceptance, openness to experiences and insight (Walach et al., 2006). Given that this measure is longer than the psychological flexibility scale utilised, it is not surprising that on at least one outcome it emerged as a stronger mediator. Nevertheless, these findings offer support to the mediation hypothesis and are consistent to previous ACT studies in the workplace that found evidence of mediation via increases in participants' acceptance (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006).

This discussion raises questions on whether it is useful to examine ACT processes separately or whether using a single, unified scale such as a measure of psychological flexibility is sufficient to validate the model's theoretical hypotheses. This is an essential reflection given that the various processes included in ACT's model of psychopathology are related and therefore potential measures may be highly correlated resulting in statistical difficulties in multiple mediation analyses. Flaxman and Bond (2009) recommended that research in this domain would benefit from examining the differential effect of the various components of psychological flexibility and enhancing mediation research by examining the effect of additional ACT-consistent processes. In addition, using different questionnaires to assess ACT processes may be of value in terms of replicating the mediation findings across measures. Bond et al., (2006) proposed that ACT mechanisms could be divided into mindfulness/acceptance processes and commitment/ behaviour change processes. Most of the scales introduced in the present studies reflected the first area, namely, mindfulness/acceptance and therefore were highly related. One of the initial aims of this project, which was not successful, was to introduce a measure of behavioural processes. This was attempted in Study 1 with the introduction of a behavioural activation scale (Kanter et al., 2006). However, this measure was dropped since it was constructed for a clinical population and seemed unsuitable as an ACT process measure. Future studies would benefit from examining the differential effect of mindfulness and behavioural processes in a multiple mediation model, perhaps with the introduction of a value scale. Wilson and Groom (2002) developed a Valued Living Questionnaire that may be useful in this regard.

The mediation findings of Study 2 were largely consistent with participants' comments. A large percentage of participants (32%) revealed that the training increased their level of acceptance of internal experiences whilst others observed increased awareness of the present moment. These comments largely reflect the primary aims of the training which included

developing a more accepting relationship of challenging internal material (Hayes et al., 1999). It is worth noting however, that a small number of participants had developed a different understanding of the training sessions which involved a desire to use ACT skills to enhance personal suppression attempts. Contrarily, the training session introduced various exercises and metaphors to demonstrate how suppression attempts are unworkable. Indeed, Wenzlaff et al. (2002) found that suppression efforts can act as a vulnerability factor for psychological distress. The fact that some participants interpreted the session in this manner may suggest that a one-day format may not sufficiently transform a long-standing suppression agenda. This finding may further explain why a thought suppression questionnaire introduced in Studies 2 and 3 did not operate as a successful mediator.

The mediation evidence for Study 3 was at odds with Studies 1 and 2 and with previous studies administering ACT in the workplace (e.g., Flaxman & Bond, 2006). This investigation did not result in any significant mediation findings that could explain the group by time interactions the emerged one-month after the intervention. Brinkborg and Michanek (2009) administered a brief ACT intervention for social work employees and reported similar findings in that post intervention they did not find increases in psychological flexibility for participants in the intervention group. Again this may reflect a difference in the way a one-day intervention impacts on a student in comparison to an employee population. Further, to differences in the sample consistency that were discussed earlier, another difference is that in Study 3 the training was offered as part of a staff development workshop whilst for students the training was advertised independently across the university. Employee workshops are a regular occurrence in a university environment and staff members are encouraged to attend. It is possible that most employees who volunteered for this program possibly did so as a matter of general interest and therefore may have found it more difficult to maintain motivation to apply the skills after the training. On the contrary, students that attended these studies sought out the program out of personal interest and without added incentives perhaps reflecting on their personal expectations from this training. It is thus possible that in the context of a staff development program in particular, a brief ACT intervention may benefit from additional post-intervention reinforcement.

Whilst examining the mediation evidence that emerged in Studies 1 and 2 one needs to observe that on most outcomes there was evidence of partial rather than full mediation. An exception to this pattern was in Study 2 on a measure of psychological well being (GHQ-12)

which was fully mediated by increases in psychological flexibility and mindfulness. Previous ACT investigations in the workplace reported full mediation of intervention outcomes through increases in psychological flexibility (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006). It is indicative that similar to Study 2, these studies also used the GHQ-12 as the main outcome measure. In view of this, it is possible that the inconsistent mediation findings may reflect differences across outcome measures. Indeed, the GHQ-12 is a measure that has been widely used in the occupational stress management literature and is sensitive enough to measure changes in clinical and non-clinical populations (e.g., Banks et al., 1980; Bunce & West, 1996; Goldberg & Williams, 1991; Hardy et al., 1999; Reynolds et al., 1993b). Contrarily, the DASS scales have been introduced in this field recently and there is less evidence to support their use as measures of change over time for stress management interventions (Nieuwenhuijsen, de Boer, Verbeek, Blonk, & van Dijk, 2003).

Another reason that Studies 1 and 2 may have not evidenced full mediation on most outcomes is that the psychological flexibility scale introduced here was shorter to the one used in previous studies in the stress management literature (Bond & Bunce, 2000; Flaxman & Bond, 2006). It is thus conceivable that a longer questionnaire may serve as a better processes measure. Furthermore, although initially intended, the present studies may have failed to capture the potential mediating effect of behavioural processes such as values and committed action. Indeed, participants spoke about experiencing changes in the way they approached and acted in situations reflecting value-consistent behaviour. Indeed, 41% of respondents commented on this area. Although the psychological flexibility scale utilised in these studies might have captured these aspects, the length and wording of this measure renders this questionable. An added possibility is that the intervention outcomes may have been in part mediated by non-specific factors. Indeed, previous research has indicated that the impact of such factors can be significant (Bunce & West, 1996; Reynolds et al., 1993a & b). In fact, non-specific variables can never be disregarded in an intervention that involves contact with a trainer (Bunce, 1997). Regrettably the present collection of studies did not measure the impact of non-specific factors as the research aims concentrated on examining an ACT mediation hypothesis. Future ACT studies may benefit from examining the impact of non-specific factors such as the perceived credibility of treatment or even the development of rapport and alliance with the trainer.

In summary, three studies offered some support that a one-day ACT intervention can exert beneficial effects as a preventative intervention. Studies 1 and 2 are the first investigations to examine ACT's effectiveness as a preventative intervention for university students. Study 3 is also the first study to examine the effectiveness of one-day ACT training as a preventative mental health intervention for employees. Two studies conducted with university students indicated that one-day ACT intervention might be more advantageous for this population than for university employees. There was some evidence to suggest that the ACT interventions may have had a prophylactic effect for participants during challenging periods however this finding is not conclusive. The findings were more modest to previous ACT investigations that were of longer duration and administered in the worksite and in schools. Arguably the one-day intervention format offers ecological validity to the present findings since it approximates programs that are more likely to be administered in real settings given its low cost and short duration. Though it was unlikely that a one-day intervention would have resulted in long-lasting improvement of participants' mental health, the evidence suggests that an ACT intervention has potential of being an effective brief intervention. Finally, two out of the three studies in this thesis, showed evidence that the intervention effects were for the most part mediated by ACT-consistent variables thus offering support to ACT's model of change. In support of this, many participants stated that the intervention had facilitated a more accepting relationship with their emotions and thoughts. The mediation findings also suggested that future research attempts might need to examine the mediating effect of additional variables (e.g., values, committed action).

3. Research Limitations

In order to consider the research outcomes fully it is essential to reflect on potential research limitations. The first area that is of consideration is measurement. In detail, the conclusions drawn from the three studies are dependent upon self-report measures. However, in the stress management literature there have been recommendations for including more objective outcome measures such as measures of absenteeism or health-care utilisation (e.g., Martin et al., 2009; Murphy, 1984; 1996). This was not possible since the university did not centrally manage the current projects and thus access to personal information was not available whilst in addition, such procedures are ethically questionable. Previous ACT interventions in the worksite have collected data of a more objective nature and reported successful outcomes.

For instance, Dahl et al. (2004) found that an ACT intervention significantly reduced healthcare utilisation and sick-leave in a sample of health-care workers whilst Varra et al. (2005) found that a one-day ACT intervention increased substance abuse counsellors propensity to utilise evidence-based therapies. In view of these findings, it is plausible that university students who benefited from the intervention during an academically challenging period may have also profited in concurrent academic tasks. This is a hypothesis that deserves attention in future research projects.

Another consideration that relates to issues of measurement is that questionnaire completion was conducted over the Internet. Previous ACT studies in this domain used more traditional means of questionnaire completion (e.g., Flaxman & Bond, 2006). The main outcome questionnaires administered in this study had been previously standardised in their electronic form demonstrating good psychometric qualities (PFA, 2008; Wijndaele et al., 2007). In fact, the reliability and construct validity of the scales appeared to be sufficient in the present studies. Nevertheless, electronic questionnaire administration may not allow participants to express questions or concerns and this may have been problematic if such issues existed. However, the researcher included a 'support' link on the online system whilst participants were encouraged to leave feedback if they encountered problems. None of the participants expressed concerns with regards to the measures. Furthermore, online administration was piloted on a group of respondents prior to the initiation of this research program and no considerations were noted. An online completion format is beneficial since participants can complete and return the questionnaires quicker and participants may be less affected by demand characteristics since questionnaires are not completed in the presence of the researcher. Another observation is that participants who provided open-ended feedback also wrote this information on the online system. Again, this format offers advantages in that participants may be less inclined to 'please' the researcher with their comments as might happen in a face-to-face interview. Nevertheless, this format does not allow the researcher to ask any follow-up questions and further clarify participants' comments.

It is important to consider whether studies may have been affected by threats of internal and external validity. Primarily, all three studies introduced a randomised control group experimental procedure. Therefore it is expected that these studies were safeguarded against common threats to internal validity such as testing and selection bias (Cook & Campbell, 1979; Trochim, 1997). Nevertheless, Trochim (1997) mentioned that randomised controlled

trials may also be affected by internal validity threats of a 'social' nature. Trochim (1997) posits that participants in the waiting list group may experience 'resentful deterioration' across measurements due to having to wait for the training session. In order to confirm that the present studies suffered from this threat it would have been essential to observe deterioration in mental health for the waiting list group. This finding was only observed in Study 3 one month after the intervention; however, this deterioration was not maintained at two months as one might have expected if this effect was due to resentful deterioration. In addition, none of the participants in the waiting list groups across studies complained about the waiting time. It is notable that the waiting list training sessions occurred three months later and therefore much sooner than other ACT studies where participants had to wait six months to attend the training (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006). Thus, given these considerations it is unlikely that this study suffered from the named threat.

Another internal validity threat frequently raised when interventions are administered in organisational settings is cross-contamination (e.g., Beehr & O'Hara, 1987; Flaxman & Bond, 2006; Hayes et al., 2004). That is, when participants across conditions discuss the intervention or share information about the training program. Reflecting on the present studies, it is more possible that this threat may have affected Study 3 where participants were employees of the same organisation. In fact, in Study 3 participants may have been acquainted with each other and could have worked in the same settings. Cross-contamination was less of a concern in Studies 1 and 2 where participants were drawn from various departments across the universities. Indeed, contrary to Study 3, none of the participants were acquainted with each other when they arrived for the training sessions. In order to protect against this threat participants were advised not to circulate training material and not to discuss the training with friends or colleagues since it was unhelpful without them attending the training. On reflection, it is unlikely that participants in Study 3 discussed the training with their colleagues in the waiting list. It is the researcher's experience that individuals that attended the waiting list sessions were often unaware that others had attended the training earlier and had little information regarding what to expect from the program.

There is one final consideration pertaining to internal validity. All three studies in this thesis seemed to have been influenced by history effects. Given that the participants across studies were drawn from an academic setting that is characterised by periods of lesser and higher demands timing effects had to be expected. Since participants across studies were randomly

assigned to the experimental conditions it is assumed that these history influences affected both conditions in a similar manner and therefore the timing of the assessments was used to facilitate the interpretation of findings. Livheim (2004) reported similar history effects in an ACT study in the student literature. It is puzzling that other researchers in the student stress management literature did not report similar effects. Conceivably this may be due to the fact that most studies in this field were administered to students involved in some type of professional training (e.g., nursing or medical students) and therefore their experience of academic demands may have been more balanced throughout the year (e.g., Rosenzweig et al., 2003; Shapiro et al., 2008). Future research projects would benefit from taking advantage of demanding periods in the yearly calendar and introducing measures at those time points to examine intervention effects. In fact, in a small investigation in the student stress management literature, Charlesworth and Murphy (1981) followed a pre-exam assessment design and demonstrated a beneficial intervention impact during those time periods. This type of design could come as a response to Reynolds and Briner's (1994) argument that short follow-up periods cannot examine whether preventative interventions offer a prophylactic effect.

It is also important to highlight that the trainer's experience in administering an ACT intervention was not long-standing and there is a possibility that across studies the trainer may have become more experienced in administering the intervention. The trainer was a counselling psychology trainee who had previous experience of administering interventions in groups. In addition she followed an intervention manual throughout the studies and recorded the sessions digitally to ascertain intervention adherence. Arguably one could maintain that the fact that the primary researcher also administered the intervention in these studies may present a conflict of interest. This limitation is acknowledged; however, due to resource limitations additional assistance was not available. Nevertheless, the researcher worked in close collaboration with her research supervisor who was able to assess procedural adherence. It is conceivable that the intervention effects may have been more pronounced with a more experienced trainer. Nonetheless, in a previous study Lappalainen et al. (2007) found that trainee therapists can successfully administer an ACT intervention for general outpatients even when they report confusion with regards to the theoretical concepts. Similarly, Stavenow (2008) trained a group of therapists that were not familiar with ACT to administer a brief intervention and reported positive outcomes. Furthermore, Saunders et al.

(1996) found that stress management interventions delivered by less or more experienced trainers often result in similar outcomes.

Further to discussing potential threats to internal validity it is also important to consider the external validity of these studies. A central question is whether the present findings could be replicated in different educational/occupational settings and across populations. It is essential to consider that participants in these studies volunteered to take part. Indeed, many authors have previously questioned who is likely to volunteer for this type of program and whether self-selective samples are representative of the general population (Reynolds & Briner, 1994). Some have raised concerns that participants who may be more distressed and thus could benefit more from this type of intervention do not often volunteer (Jones & Johnston, 2000). It is difficult to ascertain whether the level of distress of participants was different to that of the general student or employee population. This type of conclusion can only be drawn via utilising pre-screening procedures that were not introduced in this thesis. Nevertheless, the researcher has no reason to believe that participants that volunteered in these studies were more or less distressed. Moreover, the sample characteristics of Studies 1 and 2 were largely representative of a student population in terms of age and level of study. In fact, contrary to previous studies in the student stress management literature where participants were studying a specific subject (usually nursing) in the present studies participants came from a wide selection of courses. Equally, in Study 3 participants were involved in a wide spectrum of occupations across the university and their ages were of a wide range.

One concern with regards to the generalisability of the findings of Study 3 is that all participants were employed in an academic setting and thus may have been more accustomed to participating in training programs of this nature. Furthermore, it is essential to observe that across studies females were largely overrepresented (70% Studies 1 and 2; 84% Study 3). This is a common finding in the student and employee stress management literatures (e.g., Flaxman & Bond, 2006; Quick et al., 1997; Kanji et al., 2006). There is no reason to believe that gender is a moderating variable however. Hayes et al. (2004) and Varra et al. (2005) reported beneficial outcomes of an ACT intervention in studies that had a more balanced gender representation. In addition, participants across studies were well educated. That is, students in Studies 1 and 2 were enrolled on a university course and the majority of them were completing a postgraduate degree whilst, in Study 3, 78% of employees held a degree or

a postgraduate qualification. Participants' educational level may not be a restrictive factor with regards to the applicability of an ACT intervention however, since Livheim (2006) demonstrated that this type of program was beneficial for a group of high-school students. In line with the studies' sample characteristics, Vessey, Howard, and Kenneth (1993) found that females and individuals with higher education were more likely to volunteer for psychotherapy interventions or seek psychological support. Future projects would benefit from recruiting more heterogeneous samples (ideas for enhancing recruitment are discussed in the following section). An additional limitation of the present studies was that the researcher did not monitor participants' ethnicity and thus it is difficult to conclude whether the findings are generalisable across cultures. However, especially with regards to Studies 1 and 2 the researcher observed that participants came from a wide array of cultural backgrounds. Further research may wish to consider this variable in a demographics questionnaire.

There are two additional issues that are worth raising here. The sample size of the present studies was small and arguably some analyses may have been underpowered resulting in non-significant interaction effects. Indeed, this is reflected by the fact that across studies certain outcomes resulted in respectable effect sizes alongside non-significant *p* values. However, the sample sizes across studies were sufficient to achieve substantial statistical power to reveal significant between-group differences. Stress management programs have been criticised for including small samples (Murphy, 1984; 1996). Arguably longer recruitment periods for each study may have resulted in bigger samples however it was the researcher's experience that the more participants had to wait for a confirmation of their training date the more likely it was that they would withdraw their interest. Secondly, one needs to consider attrition in these studies since the dropout percentages across studies were moderate to high. However attrition in these studies was lesser to that reported in other ACT preventative interventions (e.g., Flaxman & Bond, 2006). In addition, there was no evidence that participants who withdrew from the studies were more or less distressed than those that completed the process. It is noteworthy that attrition mainly occurred due to participants not attending the training session rather than due to neglecting to complete one of the questionnaire batteries post training. Informal inquiries revealed that participants often forgot to attend, fell ill on the day of the session, or had conflicting schedules on the training day. It is essential to indicate that managing attrition was a considerable task. Indeed, the researcher believes that stress management interventions that are conducted in close collaboration with an organisation

might result in less attrition. In detail, a centrally managed intervention may benefit from fitting the training around participants' work/study schedules and thus better-accommodate individuals.

4. Recommendations for future ACT prevention studies

This section seeks to make recommendations for future ACT preventative interventions in academic and occupational settings. These issues are related to recruitment considerations, material covered by the intervention and the duration of the training.

A central consideration in this type of program is how one might employ a successful recruitment strategy. The studies described in the present thesis were advertised as a "psychological skills training". On retrospect, this title may have deterred individuals who were uncomfortable with the term "psychological" from taking part. Thus, a title might have been more attractive if it did not include psychological jargon. Flaxman and Bond (2006) raised similar concerns and introduced two different titles whilst recruiting for two studies in the workplace. The different titles did not result in notable differences in the resulting samples however. This may have been due to the occupational setting whereas a more attractive title may operate differently whilst recruiting students. Debatably many of the recruitment barriers encountered in this thesis, resulted from not having a close collaboration with the organisation from which the students and employees came from. Indeed, such close collaboration is essential and may facilitate access to innovative means of recruitment. For example, future research seeking to offer an ACT intervention in an educational setting might benefit from offering the program as a short voluntary module on the curriculum. For instance, Livheim (2004) offered an ACT intervention at schools as part of the school program and achieved a large sample. Alternatively it would be advantageous if one promoted this type of program in university open days or during student events rather than merely recruiting via posters or emails in order to reach out to more students. In reference to employee recruitment, close collaboration with staff development programs or with management might be useful to familiarise the researcher with the organisational culture and collect suggestions on best recruitment practices.

Future research programs might benefit from examining the specific challenges that are faced by a population and design interventions that meet those concerns. More focused programs might be better delivered as short interventions than generic programs such as the one provided here. Indeed, this procedure was successfully utilised by Hayes et al. (2004) and Varra et al. (2005) in a series of studies administering a focused intervention for substance abuse counsellors. Specific intervention content might also enhance recruitment since participants are more likely to be interested in a training that is designed to respond to their personal challenges. It may also aid in recruiting more male participants who may see a clearer rationale for engaging with this type of intervention. For example, an ACT preventative intervention for students in an academic setting might focus on stressors related to exams or career concerns. An intervention for employees could study specific occupational challenges (e.g., dealing with managerial pressure). This type of intervention could respond to Reynolds and Briner's (1994) criticism that stress management programs do not address specific difficulties.

A central issue that has been considered throughout this project has been the appropriate duration of a preventative intervention. The majority of studies reported in the student and organisational stress management literature administer programs that range from 1 to 15 sessions (Murphy, 1984), with most programs involving at least seven weekly sessions (Richardson and Rothstein, 2008). Comparably ACT programs have been shorter with some studies successfully administering the intervention over one-day (e.g., Varra et al., 2005). Other ACT researchers have successfully introduced a '2+1' format which involves two subsequent sessions over two weeks and another session three months later (Barkham, & Shapiro, 1990). However, a '2+1' format is often related to high attrition since participants are required to attend three sessions and researchers have questioned whether the final 'booster' session is essential (Flaxman & Bond, 2009). Unquestionably shorter formats are economical, easily applicable, and less disruptive of participants' schedules (Richardson & Rothstein, 2008). However, participants' comments in the present thesis alongside the research findings suggest that a one-day intervention may not be sufficient as a preventative mental health intervention, especially in the workplace. Nonetheless, it is noteworthy that two months after the training many participants had good recollection of the training material. Overall, participants concurred that motivation to apply the skills was a central difficulty indicating that a short program may be useful if certain reinforcements are implemented. Reflecting on these findings it is possible that future studies might benefit from administering

a one-day ACT intervention followed by half-day review session that will allow participants to troubleshoot and reinforce the learning. A useful follow-up for this type of intervention would include setting up an online Internet forum managed by the trainer where participants could discuss their experiences, pose questions, and shore motivation for continuous application of the skills. A simple add-on such as sending an email reminder to practice the skills was also recommended by some participants and could be considered in future projects.

This thesis did not aim to compare ACT to other 'second wave' CBT interventions that are often utilised as preventative models in stress management research. Due to issues of cost and time-management this was not achievable. However, previous research indicated that the two models may result in equal effectiveness when delivered in the workplace although change may occur via different processes (Flaxman & Bond, 2006). Nevertheless, 'second wave' CBT interventions administered as stress management programs are not always efficacious across studies (van der Klink et al., 2001). Furthermore, it is well-documented that not all participants respond similarly to psychotherapy interventions and there is a need for augmenting outcome and process research that explores which interventions are more efficacious and for whom (Wilson & Barkham, 1994). Future prevention research may seek to concentrate on comparing ACT to 'second wave' CBT administered in a brief intervention format.

5. Implications for Counselling Psychology

In conclusion it is useful to reflect on the implications of this thesis for counselling psychology. Hage et al. (2007) have recently emphasized the importance of prevention urging counselling psychologists to get more involved in this domain. This project aimed to respond to this recommendation and examine new avenues for preventative activities. The present section seeks to examine how a counselling psychologist's multiple roles of a researcher and a practitioner can be put into practice.

Opportunities for preventative initiatives are widespread and counselling psychologists are well placed to promote research in this domain. Indeed counselling psychologists have strong theoretical foundations and clinical expertise which are essential elements in designing and delivering this type of intervention. Rivera-Mosquera et al. (2007) and Romano and Hage

(2000) suggested that the future of prevention amounts to delivering psycho-educational programs in group contexts; this is an area where counselling psychologists could thrive. However, it has been argued that prevention research is slowly disappearing in counselling psychology and that this amounts to funding difficulties alongside the burdensome requirement of professionals engaging with field/community work (Adams, 2007). This project successfully demonstrated that preventative efforts are achievable even with limited funding and that field research can be rewarding for the practitioner and participants. Arguably, the length of the intervention administered in this project was short and given sufficient funding, researchers might consider longer interventions. However, the evidence suggests that even a brief program like the one implemented in this thesis can have beneficial outcomes. This is greatly encouraging for counselling psychologists who wish to contribute their expertise in the area of prevention. In addition, the convenience of modern communication mediums such as the Internet or telephone support can be incorporated to reinforce short face-to-face programs.

A specific contribution of this thesis is its recommendation of introducing an ACT intervention as a brief preventative program. This thesis alongside previous research provides support that this model can be effective as a preventative approach (see Biglan et al., 2008). Counselling psychologists employed in university counselling centres may wish to incorporate this approach and follow the present research recommendations for enhancing the program's efficacy. Furthermore, counselling psychologists involved in research may wish to adapt this model for other populations. Indeed, counselling psychologists come from broad multicultural backgrounds and may have access to different communities (Albee, 2000). Arguably, ACT's model of psychopathology is flexible enough to have widespread applicability (Biglan et al., 2008). It is indicative that preventative ACT interventions have been successfully introduced in various areas such as for adolescents (e.g., Metzler, Biglan, Noell, Ary, & Ochs, 2000; Wicksell, Melin, & Olsson, 2007) or for individuals with chronic health problems (e.g., Gregg, 2007; Lundgren et al., 2006) to name a few. The present project provided further support for the theoretical proposition that acceptance and mindfulness processes act as mechanisms of psychological change thus accentuating the role of experiential avoidance as a psychological vulnerability factor (e.g., Kashdan et al., 2006). From this perspective it is possible that interventions that enhance individuals' psychological flexibility may have something to add alongside standard preventative programs (Biglan et al., 2008). Incorporating a unit on acceptance, mindfulness, and value concepts in already

existing preventative initiatives (e.g., prevention of substance abuse for adolescents, for individuals at risk for depression, for mothers from underprivileged communities) may be beneficial in terms of cost efficacy and development of well-rounded programs.

An aim of this research was to reveal the underlying mechanisms of a preventative psychotherapeutic intervention. The importance of examining the processes of change has been greatly emphasized in psychotherapy research as means of examining how interventions work and how they can best facilitate change in clients (e.g., Wilson & Barkham, 1994; Wolley, Butler, & Wampler, 2000). Furthermore, process research seeks to respond to an 'equivalence paradox' that is observed in the psychotherapy and stress management literature (Bergin & Garfield, 1994; Stiles et al., 1986). According to Jacobson and Addis (1993), differences across models are primarily conceptual and thus may not be visible on main outcome measures but rather could emerge in process research. Therefore, the mediation findings of the present investigation provide some support that the observed changes on main outcome measures were in part emanated by theoretically consistent processes. This is an essential step in increasing a counselling psychologist's confidence in administering acceptance and mindfulness interventions. If follows that this thesis demonstrated how counselling psychologists can apply their clinical skills to promote theory-led research in their model of interest. Barkham and Shapiro (1992) note that the overarching aim of process research is to develop a model of how psychotherapy works and this can only be achieved through multiple research contributions and a collection of small projects. In fact, counselling psychologists may wish to incorporate process measures in their clinical practice and work-towards publishing case studies with process considerations. Additionally, research in this area may benefit from developing outcome measures that better address client growth rather than distress reduction as this perspective is more congruent with both ACT's model and counselling psychology philosophy (e.g., Ciarrochi & Bailey, 2008; Strawbridge & Woolfe, 2003). For example, the field of positive psychology has produced a series of measures that better address client growth and quality of life rather than distress reduction. For example, a measure that could be used for this purpose is the Personal Growth Initiative Scale (PGIS) developed by Robitschek (1998). The PGIS is a self-report measure that reflects a person's involvement in planning and development of personal growth activities. One could also consider using the Psychological Well-Being Scales developed by Ryff (1995). These scales consist of six dimensions (autonomy, environmental mastery, personal growth, positive

relations with others, purpose in life, and self-acceptance) and are a global measure of well-being.

Finally, this project examined the effectiveness of three ACT interventions offering some support that this model has advantages as a short preventative intervention. The main outcome findings were modest, however, in view of the program's duration and its economical advantages the findings are promising. Indeed, from a public health viewpoint universal preventative projects that offer even a small effect may be advantageous for the general population health than projects that only target a small clinical sample (Rose, 1993). The project emphasized the requirement for further research in this area and highlighted possibilities for improving similar projects. Future research might benefit from experimenting with interventions that respond to specific population concerns, offer reinforcement for post-intervention practice and finally, comparing ACT to a 'second wave' CBT intervention.

References

Abraham, C. & Michie, S. (2005). Towards a healthier nation. *The Psychologist, 18*, 670–671.

Adams, E. M. (2007). Moving from contemplation to preparation: Is counseling psychology ready to embrace culturally responsive prevention? *The Counseling Psychologist, 35,* 840-849.

Albee, G. W. (2000). Commentary on prevention and counseling psychology. *The Counseling Psychologist, 28*, 845-853.

American College Health Association (2006). American College Health Association–National College Health Assessment (ACHA–NCHA) spring 2004 reference group data report (abridged). *Journal of American College Health, 54,* 201–211.

Antony, M. M., Bieling, P. J., Cox. B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment, 10*(2), 176-181

Armitage, A. (2007, September). *Mutual research designs: Redefining mixed methods research design.* Paper presented at the British Educational Research Association Annual Conference, Institute of Education, University of London.

Astin, J. A. (1997). Stress reduction through mindfulness meditation: effects on psychological symptomatology, sense of control, and spiritual experiences. *Psychotherapy & Psychosomatics, 66,* 97–106.

Auerbach, S. M. (1989). Stress management and coping research in the health care setting: An overview and methodological commentary. *Journal of Consulting and Clinical Psychology, 57*, 388-395.

Back, P., & Hayes, S. C. (2002). The use of acceptance and commitment therapy to prevent the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 70(5)*, 1129-1139.

Bach, P., & Moran, D. (2008). *ACT in practice: Case conceptualization in Acceptance and Commitment Therapy*. Oakland, CA: New Harbinger.

Baer, R. A., Smith, G. T. & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness Skills. *Assessment, 11(3),* 191-206.

Ball, M. (2008). Prevention - Psychology's forgotten mission. *The Psychologist, 21*(7), 602-603.

Banks, M. H., Clegg, C. W., Jackson, P. R., Kemp, N. J., Stafford, E. M., & Wall, T. D. (1980). The use of the General Health Questionnaire as an indicator of mental health in occupational studies. *Journal of Occupational Psychology, 53*, 187-194.

Barkham, M., & Shapiro, D. A. (1990). Brief psychotherapeutic interventions for job-related distress: a pilot study of prescriptive and exploratory therapy. *Counselling Psychology Quarterly, 3*, 133-147.

Barkham, M., & Shapiro, D.A. (1992). Problems of methodology in studies of psychotherapy: Response. In W. Dryden & C. Feltham (Eds.), *Psychotherapy and its discontents* (pp. 86-96). London: Open University Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression.* New York: Guilford.

Becker, L. A. (2000). *Effect size (ES).* Retrieved on January 20, 2009 from http://web.uccs.edu/lbecker/Psy590/es.htm#Cohen#Cohen.

Beehr, T. A., & Newman, J .E. (1978). Job stress, employee health, and organizational effectiveness: A facet analysis, model, and literature review. *Personnel Psychology, 31,* 665-696.

Bergin, A. E., & Garfield, S. L. (1994). *Handbook of psychotherapy and behaviour change.* London: John Wiley & Sons.

Biglan, A., & Hayes, S. C. (1996). Should the behavioral sciences become more pragmatic? The case for functional contextualism in research on human behavior. *Applied & Preventive Psychology, 5*, 47-57.

Biglan, A., Hayes, S. C., & Pistorello, J. (2008). Acceptance and commitment: Implications for prevention science. *Prevention Science, 9*, 139-152.

Bond, F. W. (2004). ACT for stress. In S. C. Hayes & K. D. Strosahl (Eds.), *A practical guide to Acceptance and Commitment Therapy*, (pp. 275-292). New York: Springer.

Bond, F. W., & Bunce, D. (2000). Mediators of change in emotion-focused and problem-focused worksite stress management interventions. *Journal of Occupational Health Psychology, 5*, 156-163.

Bond, F. W., & Bunce, D. (2001). Job control mediates change in a work reorganization intervention for stress reduction. *Journal of Occupational Health Psychology, 6*, 290-302.

Bond, F. W., & Bunce, D. (2003). The role of acceptance and job control in mental health, job satisfaction, and work performance. *Journal of Applied Psychology, 88,* 1057-1067.

Bond, F. W., & Flaxman, P. E. (2006). The ability of psychological flexibility and job control to predict learning, job performance, and mental health. *Journal of organizational behavior management, 26(1/2),* 113-130.

Bond, F. W., & Hayes, S. C. (2002). ACT at work. Cited in Bond, F. W., Hayes, S. C., & Barnes-Holmes, D. (2006). Psychological flexibility, ACT, and organizational behavior. *Journal of organizational behavior management, 26*(1/2), 25-54.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Orcutt, H. K., Waltz, T. & Zettle, R. D. (Submitted). Preliminary psychometric properties of the Acceptance and Action Questionnaire – II: A revised measure of psychological flexibility and acceptance.

Bond, F. W., Hayes, S. C., & Barnes-Holmes, D. (2006). Psychological Flexibility, ACT and Organizational Behavior. In S. C. Hayes, F. W. Bond, D. Barnes-Holmes, & J. Austin (Eds.), *Acceptance and Mindfulness at Work: Applying Acceptance and Commitment Therapy and Relational Frame Theory to Organizational Behavior Management* (pp. 25-54). Binghamton, NY: The Haworth Press.

Bramesfeld, A., Platt, L., Schwartz, F. W. (2006). Possibilities for intervention in adolescents' and young adults' depression from a public health perspective. *Health Policy, 79,* 121-131.

Brinkborg, H. & Michanek, J (2009). ACT for stress - *A Randomized Controlled Trial of an group intervention for social workers.* Master thesis from Stockholm University. Presented June 2009 at the World Conference on ACT, RFT, and Contextual Behavioral Science, Enschede, The Netherlands.

Briner. R.B., & Reynolds, S. (1993). "Bad Theory and Bad Practice in Occupational Stress." *The Occupational Psychologist, 19,* 18-13.

Brown, T. A., Korotitsch, W., Chorpita, B. F., & Barlow, D. H. (1997). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. *Behaviour Research and Therapy, 35*, 79-89.

Buchheld, N., Grossman, P., & Walach, H. (2002). Measuring mindfulness in insight meditation (Vipassana) and meditation-based psychotherapy: The development of the Freiburg mindfulness inventory (FMI). Cited in Walach, H., Buchheld, N., Buttenmuller, V.,

Kleinknecht, N., & Schmidt, S. (2006). Measuring Mindfulness--The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences, 40*, 1543-1555.

Bunce, D., & Stephenson, K. (2000). Statistical considerations in the interpretation of research on occupational stress management interventions. *Work & Stress, 14*, 197-212.

Bunce, D., & West, M. A. (1996). Stress management and innovation interventions at work. *Human Relations, 49,* 209-232.

Burns, D. D., & Spangler, D. L. (2001). Do changes in dysfunctional attitudes mediate changes in depression and anxiety in cognitive behavioural therapy? *Behavior Therapy, 32,* 337-369.

Caplan, G. (1964). *Principles of preventive psychiatry*. New York: Basic Books.

Carrington, P., Coilings, G. H. Jr, Benson, H., Robinson, H., Wood, L. W., Lehrer, P. M.Woolfolk, R. L. & Cole, J. W. (1980). The use of meditation-relaxation techniques for the management of stress in the working population. *Journal of Occupational Medicine, 22,* 221-231.

Catania, A. C. (1998). *Learning* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Chambless, D. L., & Peterman, M. (2006). Evidence on cognitive-behavioral therapy for generalized anxiety Disorder and panic disorder. In R. L. Leahy (Ed.), *Contemporary cognitive therapy: theory, research and practice* (pp. 86-115). London: Guildford Press.

Charlesworth, E. A., & Murphy, S. (1981). Stress management for nursing students. Journal of *Clinical Psychology, 37*(2), 284-290.

Ciarrochi, J., & Bailey, A. (2008). *A CBT-Practitioner's Guide to ACT: How to Bridge the Gap Between Cognitive Behavioral Therapy and Acceptance and Commitment Therapy*. Oakland, CA: New Harbinger Publications.

Ciarrochi, J. & Bilich, L. (2006). *Process measures of potential relevance to ACT.* Unpublished manuscript, University of Wollongong, Australia. Retrieved on March, 2, 2009 from Association for Contextual Behavioral Science Web site: http://www.contextualpsychology.org/publications.

Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (revised edition). New York: Academic Press.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd edition). Hillsdale, NJ: Erlbaum.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155-159.

Conyne, R. K. (2000). Prevention in counseling psychology: At long last, has the time now come? *The Counseling Psychologist, 28,* 838-844.

Cook, T. D., & Campbell, D. T. (1979). *Quasi-experimentation: Design and analysis issues for field settings.* Chicago: Rand McNally.

Cook, T. D., & Reichardt, C. S. (Eds.). (1979). *Qualitative and quantitative methods in evaluation research.* Beverly Hills, CA: Sage.

Crawford, J.R. & Henry, J.D. (2003). The Depression Anxiety Stress Scales (DASS): Normative data and latent structure in a large non-clinical sample. *British Journal of Clinical Psychology, 42,* 111-131.

Creswell, J. W., Fetters, M. D., & Plano Clark, V. L. (2005). *Nesting qualitative data in health sciences intervention trials: A mixed methods application.* Paper presented at the Annual Meeting of the American Educational Research Association, Montreal.

Creswell, J. W., & Plano Clark, V. L. (2007). *Designing and conducting mixed method research.* London: Sage Publications.

Dahl, J., Wilson, K. G., & Nilsson, A. (2004). Acceptance and commitment therapy and the treatment of persons at risk for long-term disability resulting from stress and pain symptoms: A preliminary randomized trial. *Behavior Therapy, 35,* 785-801.

Dalrymple, K. L., & Herbert, J. D. (2007). Acceptance and commitment therapy for generalized social anxiety disorder: A pilot study. *Behaviour Modification, 31,* 543-569.

Deardorff, P. A., Hopkins, L. R., & Finch, A. J. (1984). Automatic Thoughts Questionnaire: A reliability and validity study. *Psychological Reports, 55,* 708-710.

Decker, P., & Borgen, F. (1993). "Dimensions of work appraisal: stress, strain, coping, job satisfaction, and negative affectivity", *Journal of Counseling Psychology,* 40, 470-8.

Deckro, G. R., Ballinger, K. M., Hoyt, M., Wilcher, M., Dusek, J., Myers, P., Greenberg, B., Rosenthal, D. S., & Benson, H. (2002). *Journal of American College Health, 50*(6), 281-287.

DeFrank, R. S., & Cooper, C. L. (1987). Worksite stress management interventions: Their effectiveness and conceptualisation. *Journal of Managerial Psychology, 2,* 4-10.

Dempster, M., Bolderston, H., Gillanders, D., & Bond, F. (2009). *The development of a measure of cognitive fusion: The CFQ.* Retrieved October 1, 2009, from Association for Contextual Behavioral Science Web site: http://www.contextualpsychology.org/node/4249.

DeRubeis, R. J., Gelfand, L. A., Tang, T. Z., & Simons, A. D. (1999). Medications versus cognitive behavioral therapy for severely depressed outpatients: Mega-analysis of four randomized comparisons. *American Journal of Psychiatry, 156*, 1007-1013.

Dewe, P. (1994). EAPs and stress management: From theory to practice to comprehensiveness, *Personnel Review, 23*(7), 21-32.

Dewe, P., & Trenberth, L. (2004). Work stress and coping: drawing together research and practice. *British Journal of Guidance & Counselling, 32*(2), 143-156.

Donaldson-Feilder, E. J., & Bond, F. W. (2004). The relative importance of psychological acceptance and emotional intelligence to workplace well-being. *British Journal of Guidance & Counselling, 32(2),* 187-203.

Drazen, M., Nevid, J. S., Pace, N., & O'Brien, R. M. (1982). Worksite-based behavioral treatment of mild hypertension. *Journal of Occupational & Environmental Medicine, 24*, 511-514.

Dzieglielewski, S. F., Roest-Marti, S., & Turnage, B. (2004). Addressing stress with social work students: A controlled evaluation. *Journal of Social Work Education, 40*(1), 105-119.

Ellis, A. (1962). *Reason and emotion in psychotherapy.* New York: Lyle Stuart Press.

Everitt, B.S. (2002) *The Cambridge dictionary of Statistics* (Second Edition). Cambridge: Cambridge University Press.

Faul, F., Erdfelder, E., Lang, A. G. & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39,* 175-191.

Field, A. (2006). *Discovering statistics using SPSS.* London: Sage

Flaxman, P. E., & Bond, F. W. (2006). *Acceptance-based and traditional cognitive-behavioural stress management in the workplace: Investigating the mediators and moderators of change.* Unpublished doctoral thesis. Goldsmiths College, University of London.

Flaxman, P. E., & Bond, F. W. (2009, forthcoming). Acceptance and commitment therapy: Promoting psychological flexibility in the workplace. In R. A. Baer (Ed.), *Mindfulness and acceptance: Illuminating the processes of change.* Oakland, CA: New Harbinger.

Fontana, A. M., Hyra, D., Godfrey, L., Cermak, L. (1999). Impact of a peer-led stress inoculation training intervention on state anxiety and heart rate in college students. *Journal of Applied Biobehavioral Research, 4,* 45–63.

Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A randomized controlled effectiveness trial of acceptance and commitment therapy and cognitive therapy for anxiety and depression. *Behavior Modification, 31*(6), 772-799.

Fox, E. J. (2005). *Functional contextualism.* Retrieved March, 3, 2009, from Association for Contextual Behavioral Science Web site: http://www.contextualpsychology.org /functional_contextualism_0

Fox, E. J. (2006). Clarifying functional contextualism: A reply to commentaries. *Educational Technology Research and Development, 54*(1), 61-64.

Fox, E. J. (2008). Contextualistic perspectives. In J. M. Spector, M. D. Merrill, J. van Merrineboer, &M. P. Driscoll (Eds.) *Handbook of research on educational communications and technology* (3rd Ed.). (pp. 55-66). Mahwah, NJ: Lawrence Erlbaum Associates.

Fox, E. (2009b). *Functional contextualism.* Retrieved August, 20, 2009, from Association for Contextual Behavioral Science Web site: http://www.contextualpsychology.org/functional_contextualism_0.

Fox, E. (2009a). *Relational frame theory tutorial.* Retrieved March, 3, 2009, from Association for Contextual Behavioral Science Web site: http://www.contextualpsychology.org/access_tutorial.

Garson, G. D. (2008). *Data imputation for missing values.* Retrieved March 6, 2009, from NC State University Quantitative Research in Public Administration Web site: http://faculty.chass.ncsu.edu/garson/PA765/missing.htm.

Gaudiano, B. A., & Herbert, J. D. (2006). Acute treatment of inpatients with psychotic symptoms using acceptance and commitment therapy: Pilot results. *Behaviour Research and Therapy, 44,* 415-437.

Gifford, E. V., & Hayes, S. C. (1999). Functional contextualism: A pragmatic philosophy for behavioral science. In W. O'Donohue & R. Kitchener (Eds.), *Handbook of behaviorism* (pp. 285-327). San Diego: Academic Press.

Girden, E. R. (1992). *ANOVA: repeated measures.* Sage university paper series on quantitative applications in the social sciences, 07-084. Thousand Oaks, CA: Sage.

Glass, G. V., Peckham, P. D., & Sanders, J. R. (1972). Consequences of failure to meet assumptions underlying the analysis of variance and covariance. *Review of*

Educational Research, 42, 237-288.

Goldberg, D. P., Gater, R. Sartorius, N., Ustun, T. B., Piccinelli, M., Gureje, O., & Rutter, C. (1997). The Validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychological Medicine*, 27, 191-197.

Goldberg, D. P., & Williams, P. (1991). *A user's guide to the General Health Questionnaire*. London: Nfer-Nelson.

Gomez, F. (2007). *A guide to the Depression, Anxiety and Stress Scale (DASS 21).* Retrieved March, 3, 2009 from http://www.shiregps.org.au/documents/MH_DASS21%20Instructions.pdf.

Goodyear, R. K., Murdock, N. L., Lichtenberg, J. W., McPherson, R., Petren, S. M., & O'Byrne, K. K. (2007). Charting the evolution of a specialty: Stability and change in counseling psychologists' identities, roles, functions, and career satisfaction across 15 years. *Journal of Counseling Psychology (in press).* As cited in Hage, S. M., Romano, J. L., Conyne, R. K., Kenny, M., Schwartz, J. P., & Waldo, M. (2007). Walking the talk: Implementing the prevention guidelines and transforming the profession of psychology. *The Counseling Psychologist, 35,* 594-604.

Gordon, R. (1987). An operational classification of disease prevention. In J. A. Sternberg & M. M. Silverman (Eds.), *Preventing mental disorders* (pp. 20-26). Rockville, MD: U.S. Department of Health and Human Services. Cited in Holden, E. W., & Black, M. M. (1999). Theory and concepts of prevention science as applied to clinical psychology. *Clinical Psychology Review, 19*(4). 391-401.

Gortner, E. T., Gollan, J. K., Dobson, K. S., & Jacobson, N. S. (1998). Cognitive-behavioral treatment for depression: Relapse prevention. *Journal of Consulting and Clinical Psychology, 66,* 377-384.

Graetz, B. (1991). Multidimensional properties of the General Health Questionnaire. *Social Psychiatry and Psychiatric Epidemiology, 26*(3), 1433-9285.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today, 24,* 105-112.

Gratz, K. L., & Gunderson, J. G. (2006). Preliminary data on an acceptance-based emotion regulation group intervention for deliberate self-harm among women with borderline personality disorder. *Behavior Therapy, 37,* 25-35.

Gregg, J. A. (2004). A randomized controlled effectiveness trial comparing patient education with and without acceptance and commitment therapy. Cited in Hayes S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behavior Research and Therapy, 44,* 1-25.

Hankins, M. (2008). The reliability of the twelve item General Health Questionnaire (GHQ-12) under realistic assumptions. *BMC Public Health, 8*, 355.

Hansen, F. K. (1981). Primary prevention and counseling psychology: Rhetoric or reality? *The Counseling Psychologist, 9*, 57-60.

Hardy, G.E., Shapiro, D.A., Haynes, C.E., & Rick, J.E. (1999). Validation of the General Health Questionnaire-12 using a sample of employees from England's health care services. *Psychological Assessment, 11*, 159-165.

Harrell, T. H., & Ryon, N. B. (1983). Cognitive-behavioral assessment of depression: Clinical validation of the Automatic Thoughts Questionnaire. *Journal of Consulting and Clinical Psychology, 51*, 721-725.

Hayes, S. C. (1993). Analytic goals and the varieties of scientific contextualism. In S. C. Hayes, L. J. Hayes, H. W. Reese, & T. R. Sarbin (Eds.), *Varieties of scientific contextualism* (pp. 11-27). Reno, NV: Context Press.

Hayes, S. C. (2004). Acceptance and Commitment Therapy, Relational Frame Theory, and the third wave of behavior therapy. *Behavior Therapy, 35*, 639-665.

Hayes, S. C., Barnes-Holmes, D., & Roche, B. (Eds.). (2001). *Relational frame theory: A post-Skinnerian account of human language and cognition.* New York: Plenum Press.

Hayes, S. C., Bissett, R., Korn, Z., Zettle, R. D., Rosenfarb, I., Cooper, L., & Grundt, A. (1999). The impact of acceptance versus control rationales on pain tolerance. *The Psychological Record, 49*, 33-47.

Hayes, S. C., Bissett, R., Roget, N., Padilla, M., Kohlenberg, B. S., Fisher, G., & Masuda, A. (2004). The impact of acceptance and commitment training and multicultural training on the stigmatizing attitudes and professional burnout of substance abuse counselors. *Behavior Therapy, 35*, 821-835.

Hayes, S. C., Hayes, L. J., & Reese, H. W. (1988). Finding the philosophical core: A review of Stephen C. Pepper's World Hypotheses. *Journal of the Experimental Analysis of Behavior, 50*, 97-111.

Hayes S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behavior Research and Therapy, 44*, 1-25.

Hayes, S. C., & Smith, S. (2005). *Get out of your mind and into your life: The new Acceptance and Commitment Therapy.* Oakland, CA: New Harbinger.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behaviour change.* New York: The Guilford Press.

Hayes, S. C., Strosahl, K. D., Bunting, K., Twohig, M., & Wilson, K. G. (2004). What is acceptance and commitment therapy? In S. C. Hayes & K. D. Strosahl (Eds.), *A practical guide to acceptance and commitment therapy* (pp. 1-29). New York: Springer.

Hayes, S. C., Strosahl, K. D., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., et al. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record, 54,* 553-578.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Bissett, R., Piasecki, M., Batten, S. V. et al. (2004). A preliminary trial of twelve-step facilitation and acceptance and commitment therapy with polysubstance-abusing methadone-maintained opiate addicts. *Behavior Therapy, 35,* 667-688.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64,* 1152-1168.

Health and Safety Executive (2003). *Occupational stress statistics information sheet.* Retrieved on June 15, 2009 from http://www.clarionltd.com/downloads/files/Occupational%20Stress%20Statistics.pdf

Health and Safety Executive (2008). *Stress-related and psychological disorders.* Retrieved June 10, 2009, from http://www.hse.gov.uk/statistics/causdis/stress/index.htm

Healy, M. (1991). Stess: Many nearly quit job. USA Today, 7-9. Cited by Kagan, N. I., Kagan, H., Watson, M. G. (1995). Stress reduction in the workplace: The effectiveness of psychoeducational programs. *Journal of Counselling Psychology, 42*(1), 71-78.

Heaman, D. J. (1995). The quieting response (QR): a modality for reduction of psychophysiologic stress in nursing students. *Journal of Nursing Education, 34,* 5–10.

Heffner, M., Eifert, G. H., Parker, B. T., Hernandez, D. H., & Sperry, J. A. (2003). Valued directions: Acceptance and commitment therapy in the treatment of alcohol dependence. Cognitive and *Behavioural Practice, 10,* 378-383.

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44,* 227-239.

Hesketh, B. (2000). Prevention and development in the workplace. In S. D. Brown & R.W. Lent (Eds.), *Handbook of counseling psychology* (pp. 471-498). New York: John Wiley.

Hill, R. D., Thorn, B. L., & Packard, T. (2000). Counseling older adults: Theoretical and

empirical issues in prevention and intervention. In S. D. Brown & R.W. Lent (Eds.), *Handbook of counseling psychology (pp. 499-531).* New York: John Wiley.

Hofmann, S. G. (2004). Cognitive mediation of treatment change in social phobia. *Journal of Consulting and Clinical Psychology, 72,* 392–399.

Hofmann, S. G., Meuret, A. E., Rosenfield, D., Suvak, M. K., Barlow, D. H., Gorman, J. M., et al. (2007). Preliminary evidence for cognitive mediation during cognitive behavioral therapy for panic disorder. *Journal of Consulting and Clinical Psychology, 75,* 374–379.

Hofmann, S. G. (2008). Acceptance and commitment therapy: New wave or morita therapy? *Clinical Psychology: Science and Practice, 15*(4), 280-285.

Hollander; R. B., & Lengermann, J. J. (1986). Fortune 500 companies: Long on wellness, short on evaluation. *Corporate Commentary, 2,* 51-52.

Hollon, S. D., Evans, M. D., & DeRubeis, R. J. (1987). Causal mediation of change in treatment of depression: Discriminating between nonspecificity and noncausality. *Psychological Bulletin, 102(1),* 139-149.

Hollon, S. G., & Kendall, P. C. (1981). Cognitive self-statements in depression: Development of an Automatic Thoughts Questionnaire. *Cognitive Therapy and Research, 4,* 383-395.

Holtzworth-Munroe, A., Munroe, M. S., & Smith, R. E. (1985). Effects of a stress-management training program on first- and second-year medical students, *Journal of Medical Education, 60,* 417-419.

Howell, D. C. (2002a). *GLM, unequal sample sizes and the analysis of covariance.* Lecture notes for Advanced Statistical Methods. Retrieved on March 3, 2009 from http://www.uvm.edu/~dhowell/gradstat/psych341/lectures/Ancova-Uneq/Covar1.html.

Howell, D. C. (2002b). *Statistical methods for psychology.* Belmont: Thomson.

Howell, D.C. (2007). *Treatment of missing data.* Retrieved on March, 3, 2009, from http://www.uvm.edu/~dhowell/StatPages/More_Stuff/Missing_Data/Missing.html.

Hunter, A. & Brewer, J. (2003) Multimethod research in sociology. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research,* (pp. 577-594). Thousand Oaks: Sage.

Hutchings & Lane, (2006). Reaching those who need it most. *The Psychologist, 19*(8), 480-483.

Ivancevich, J. M., Matteson, M. T., Freedman, S. M., & Phillips, J. S. (1990). Worksite stress management interventions. *American Psychologist, 45*(2), 252-261.

Jacobson, N. S., & Addis, M. E. (1993). Research on couples and couple therapy: what do we know? *Journal of Consulting and Clinical Psychology, 61*(4), 620-30.

Jacobson, N. S., Dobson, K. S., Truax, P. A., Addis, M. E., Koerner, K., Gollan, J. K., et al. (1996). A component analysis of cognitive-behavioral treatment for depression. *Journal of Consulting and Clinical Psychology, 64,* 295-304.

Jakobsson, C. & Wellin, J. (2006). *ACT and stress in school - A two year follow up of an RCT.* Master thesis from Uppsala University. Presented June 2006 at the World Conference on ACT, RFT, and Contextual Behavioral Science, London, England.

Johansson, N. (1991). Effectiveness of a stress management program in reducing anxiety and depression in nursing students. *Journal of American College Health, 40,* 125–129.

Johansson, P., & Hoglend, P. (2007). Identifying mechanisms of change in psychotherapy: Mediators of treatment outcome. *Clinical Psychology and Psychotherapy, 14*, 1-9.

Jones, M. C., Johnston, D. W. (2000). Evaluating the impact of a worksite stress management programme for distressed student nurses: a randomised controlled trial. *Psychology and Health, 15*, 689-706.

Judd, C. M., & Kenny, D. A. (1981). Process analysis: Estimating mediation in treatment evaluations. *Evaluation Review, 5,* 602-619.

Kabat-Zinn, J. (1993). Mindfulness meditation: Health benefits of an ancient Buddhist practice, In D. Goleman & J. Gurin (Eds.), *Mind body medicine: How to use your mind for better health.* New York: Consumer reports books.

Kagan, N. I., Kagan, H., Watson, M. G. (1995). Stress reduction in the workplace: The effectiveness of psychoeducational programs. *Journal of Counselling Psychology, 42*(1), 71-78.

Kanji, N., White, A., & Ernst, E. (2006). Autogenic training to reduced anxiety in nursing students: randomized controlled trial. *Journal of Advanced Nursing, 53*(6), 729-735.

Kanter, J. W., Mulick, P. S., Busch, A. M., Berlin, K. S., & Martell, C. R. (2006). The Behavioral Activation for Depression Scale (BADS): Psychometric properties and factor structure. *Journal of Psychopathology and Behavioral Assessment, 29*(3), 191-202.

Kanter, J. W., Rusch, L. C., Busch, A. M., & Sedivy, S. K. (2009). Validation of the Behavioral Activation for Depression Scale (BADS) in a community sample with elevated depressive Symptoms. *Journal of Psychopathology and Behavioral Assessment, 31,* 36-42.

Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behaviour Research and Therapy, 44,* 1301-1320.

Kassarjian, H., (1971). Personality and consumer behavior: a review. *Journal of Marketing Research, 8,* 409-418.

Kendall, P. C., & Treadwell, K. R. H. (2007). The role of self-statements as a mediator of treatment for youth with anxiety disorders. *Journal of Consulting and Clinical Psychology, 75,* 380–389.

Kenny, D. A. (2009). *Mediation.* Retrieved March, 2, 2009, from http://davidakenny.net/cm/mediate.htm.

Krippendorf, K. (2004). *Content Analysis, an introduction to its methodology,* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Krumboltz, J. D., Becker-Haven, J. F., & Burnett, K. F. (1979). Counseling psychology. *Annual Review of Psychology, 30,* 555-602.

Lappalainen, R. Lehtonen, T., Skarp, E., Taubert, E., Ojanen, M., & Hayes, S. (2007). The impact of CBT and ACT models of using psychology trainee therapists: A preliminary controlled effectiveness trial. *Behaviour Modification, 31,* 488-512.

Lazarus, R. S. (2006). *Stress and emotion: A new synthesis.* New York: Springer.

Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Levitt, J. T., Brown, T. A., Orsillo, S. M., & Barlow, D. H. (2004). The effects of acceptance versus suppression of emotion on subjective and psychophysiological response to carbon dioxide challenge in patients with panic disorder. *Behavior Therapy, 35,* 747-766.

Lillis, J., & Hayes, S. C. (2007). Applying acceptance, mindfulness, and values to the reduction of prejudice: A pilot study. *Behavior Modification, 31*(4), 389-411.

Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder.* New York: Guilford Press.

Little, R. J. A., & Rubin, D. B. (1987). *Statistical analysis with missing data.* New York: John Wiley & Sons.

Livheim, F. (2004). *Acceptance and Commitment Therapy in school setting - To cope with*

stress. Master thesis from Uppsala University. Presented June 2006 at the World Conference on ACT, RFT, and Contextual Behavioral Science, London, England.

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales. (2nd. Ed.)* Sydney: Psychology Foundation.

Lundgren, T., Dahl, J., Melin, L., & Kies, B. (2006). Evaluation of acceptance and commitment therapy for drug refractory epilepsy: a randomized controlled trial in South Africa-A pilot study. *Epilepsia, 47(12)*, 2173-2179.

Luoma, J. B., Hayes, S. C., Twohig, M .P., et al. (2007). Augmenting continuing education with psychologically focused group consultation: Effects on adoption of group counseling. *Psychotherapy: Theory, Research, Practice, Training, 44*, 463-469.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test the significance of the mediated effect. *Psychological Methods, 7*, 83-104.

Martin, A., Sanderson, K., & Cocker, F. (2009). Meta-analysis of the effects of health promotion intervention in the workplace on depression and anxiety symptoms. *Scandinavian Journal of Work and Environmental Health, 35*(1), 7-18. Retrieved on June 2, 2009 from http://eprints.utas.edu.au/8131/1/Martin08_SJWEH.pdf.

Martell, C. R., Addis, M. E., & Jacobson, N. S. (2001). *Depression in context: Strategies for guided action.* New York: Norton.

Maxwell, S.E., O'Callaghan, M.F., Delaney, H.D. (1993), "Analysis of covariance", in Edwards, L.K. (Eds), *Applied Analysis of Variance in Behavioural Science* (pp. 63-104), New York: Marcel Dekker.

Masuda, A., Hayes, S. C., Sackett, C. F., & Twohig, M. P. (2004). Cognitive defusion and self-relevant negative thoughts: Examining he impact of a ninety year old technique. *Behaviour Research and Therapy, 42*, 477-485.

McCracken, L. M., Vowles, K. E., & Eccleston, C. (2005). Acceptance-based treatment for persons with complex, long standing chronic pain: a preliminary analysis of treatment outcome in comparison to a waiting phase. *Behavior Research and Therapy, 43*, 1335-1345.

Meichenbaum, D. (1985). *Stress inoculation training.* New York: Pergamon.

Meichenbaum, D. (2007). Stress inoculation training: A preventative and treatment approach. Chapter to appear in P. M. Lehrer, R. L. Woolfolk & W. S. Sime (Eds.), *Principles and practice of stress management* (3rd Edition). New York: Guilford Press. Retrieved on June 15, 2009 from http://www.melissainstitute.org/documents/stress_ inoculation.pdf.

Metzler, C. W., Biglan, A., Noell, J., Ary, D., & Ochs, L. (2000). A randomized controlled trial of a behavioral intervention to reduce high-risk sexual behavior among adolescents in STD clinics. *Behavior Therapy, 31*, 27–54.

Morse, J. (2003). Principles of mixed methods and multimethod research design. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research*, (pp. 189-208), Thousand Oaks: Sage.

Murphy, L. R. (1984). Occupational stress management: A review and appraisal. *Journal of Occupational Psychology, 57,* 1-15.

Murphy, L. R. (1996). Stress management in work settings: A critical review. *American Journal of Health Promotion, 11,* 112-135.

Murphy, L. R., & Sorenson, S. (1988). Employee behaviors before and after stress management. *Journal of Organizational behavior, 9,* 173-182.

Murray, C. J. L., & Lopez, A. D. (1996). *The global burden of diseases: A comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020.* Boston: Harvard School of Public Health, WHO and World Bank.

Naquin, M. R., & Gilbert, G. G. (1996). College students' smoking behavior, perceived stress, and coping styles. *Journal of Drug Education, 26*(4), 367–376.

National Institute for Mental Health in England (2005). *Making it possible: improving mental health and well-being in England.* Care services improvement partnership. Retrieved May, 2, 2009, from http://www.csip.org.uk/silo/files/making-it-possible-full-version.pdf. Leeds: NIMHE.

Nerdrum, P., Rustoen, T., & Ronnestad, M. H. (2006). Student psychological distress: A psychometric study of 1750 Norwegian 1st-year undergraduate students. *Scandinavian Journal of Educational Research, 50*(1), 95-109.

Netemeyer, R. G., Williamson, D. A., Burton, S., Biswas, D., Jindal, S., Landreth, S. et al. (2002). Psychometric properties of shortened versions of the automatic thoughts questionnaire. *Educational and Psychological Measurement, 62,* 111-129.

Nieuwenhuijsen, K., de Boer, A. G. E. M., Verbeek, J. H. A. M., Blonk, R. W. B., van Dijk, F. J. H. (2003). The Depression Anxiety Stress Scales (DASS): detecting anxiety disorder and depression in employees absent from work because of mental health problems. *Occupational and Environmental Medicine. 60*(s1), 77–82.

Nigam, J. A.; Murphy, L. R.; Swanson, N. G. (2003). Are Stress Management Programs

Indicators of Good Places to Work? Results of a National Survey. Are Stress Management Programs Indicators of Good Places to Work? *International Journal of Stress Management, 10,* 345-360.

Nunnally, J., & Bernstein, I. (1993). *Psychometric theory* (3rd Ed.). New York: Oxford University Press.

O'Byrne, K. K., Brammer, S. K., Davidson, M. M., & Poston, W. S. C. (2002). Primary prevention in counseling psychology: Back to the future. *The Counseling Psychologist, 30,* 330-344.

Olejnik, S. F., & Algina, J. (1985). A review of nonparametric alternatives to analysis of covariance. *Evaluation Review, 9*(1), 51-83.

Oman, D., Shapiro, S. L., Thoresen, C. E., Plante, T. G. & Flinders, T. (2008). Meditation lowers stress and supports forgiveness among college students: A randomized controlled trial. *Journal of American College Health, 56*(5), 569-578.

Pallant, J. (2007). *SPSS survival manual.* Berkshire: Open University Press.

Palmer, S. (2003). Stress management and Prevention programmes. In R., Woolfe, W., Dryden, & S., Strawbridge, S. (Eds.), *Handbook of Counselling Psychology.* (pp. 572-591). London: Sage.

Parkes, K. R. (1990). Coping, negative affectivity, and the work environment: Additive and interactive predictors of mental health. *Journal of Applied Psychology, 75*(4), 399-409.

Pavlov, I. P. (1927). *Conditioned Reflexes: An Investigation of the Physiological Activity of the Cerebral Cortex. Translated and Edited by G. V. Anrep.* London: Oxford University Press. As cited in Bach, P., & Moran, D. (2008). *ACT in practice: Case conceptualization in Acceptance and Commitment Therapy.* Oakland, CA: New Harbinger.

Pepper, S. C. (1942). *World hypotheses: A study in evidence.* Berkeley: University of California Press.

Pierson, H. M., Hayes, S. C., & Gifford, E. V. (2004). Acceptance and commitment therapy and motivational interviewing with substance abuse. Cited in Bond, F. W., Hayes, S. C., & Barnes-Holmes, D. (2006). Psychological flexibility, ACT, and organizational behavior. *Journal of organizational behavior management, 26(1/2),* 25-54.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891.

Psychology Foundation of Australia. (2008). *Depression, Anxiety, Stress, Scales (DASS).*

Retrieved on March, 3, 2009, from http://www2.psy.unsw.edu.au/groups/dass//.

Quick, J. C., Quick, J. D, Nelson, D. L., & Hurrell, J. J. (1997). *Preventive stress management in organisations*. Washington DC: American Psychological Association.

Rachman, S. (1997). The evolution of cognitive behaviour therapy. In D. M. Clark and C. G. Fairburn (Eds.), *Science and practice of cognitive behaviour therapy.* Oxford: Oxford University Press.

Reynolds, S., Briner, R. B. (1994). Stress management at work: With whom, for whom and to what ends? *British Journal of Guidance and Counselling, 22*, 75-87.

Reynolds, S., Taylor, E., & Shapiro, D. (1993a). Session impact in stress management training. *Journal of Occupational and Organizational Psychology, 66*, 99-113.

Reynolds, S., Taylor, E., & Shapiro, D. (1993b). Session impact and outcome in stress management training. *Journal of Community & Applied Social Psychology, 3*, 325-337.

Richardson, K. M., & Rothstein, H. R. (2008). Effects of occupational stress management intervention programs: A meta-analysis. *Journal of Occupational Health Psychology, 13*(1), 69-93.

Rivera-Mosquera, E., Dowd, E. T., & Mitchell-Blanks, M. (2007). Prevention activities in professional psychology: A reaction to the prevention guidelines. *The Counseling Psychologist, 35,* 586-593.

Robitschek, C. (1998). Personal growth initiative: The construct and its measure. *Measurement and Evaluation in Counseling and Development, 30,* 183-198.

Romano, J. L. (1988). Stress Management Counseling: From crisis to prevention *Counselling Psychology Quarterly, 1*(2-3), 211 – 219.

Romano, J. L., & Hage, S. M. (2000). Prevention and counseling psychology: Revitalizing commitments for the 21st century. *The Counseling Psychologist, 28,* 733-763.

Rosenzweig, S., Reibel, D. K., Greeson, J. M., Brainard, G. C., & Hojat, M. (2003). Mindfulness-based stress reduction lowers psychological distress in medical students. *Teaching & Learning in Medicine, 15*(2), 88-92.

Ross, S. E. Niebling BC, Heckert TM. (1999). Sources of stress among college students. *College Studies Journal, 33,* 312–317.

Rout, U. R., & Rout, J. K. (2002). *Stress management for primary health care professionals.* New York: Springer

Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science, 4*, 99-104.

Sadava, S. W., & Pak, A. W. (1993). Stress-related problem drinking and alcohol problems: A longitudinal study and extension of Marlatt's model. *Canadian Journal of Behavioural Science, 25*(3), 446–464.

Sallis, J.F., Trevorrow, T.R., Johnson, C., Hovell, M.F., & Kaplan, R.M. (1987). Worksite stress management: # A comparison of programs. *Psychology and Health, 1*, 237-255.

Saunders, T., Driskell, J.E., Johnston, J.H., & Salas, E. (1996). The effect of stress inoculation training on anxiety and performance. *Journal of Occupational Health Psychology, 1*, 170-186.

Sawilowsky, S. S. (1003). Comments on using alternative to normal theory statistics in social and behavioural science. *Canadian Psychology, 34*, 432-439.

Sax, L. J. (1997). Health trends among college freshman. *Journal of American College Health. 45,* 252–262

Schwartz, A. J. (2006). Are college students more disturbed today? Stability in the acuity and qualitative character of psychopathology of college counseling center clients: 1992-1993 through 2001-2002. *Journal of American College Health 54*(6), 327-337.

Segal, Z. V., Teasdale, J. D., & Williams, J. M. G. (2004). Mindfulness-based cognitive therapy: Theoretical rationale and empirical status. In S. C. Hayes, V. M. Follette, & M. M. Linehan (Eds.). *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition.* New York: Guilford Press.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. T. (2001). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse.* New York: Guilford Press.

Seligman, M. (1998). President's column: Building human strength: Psychology's forgotten mission. *American Psychological Association Monitor, 29*, 2.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 57*, 222-225.

Shapiro, S. L., Schwartz, G. E., & Bonner, G. (1998). Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine, 12*(6), 581-599.

Sheppard, L. C., & Tesadale, J. D. (2000). Dysfunctional thinking in major depressive disorder : A deficit in metacognitive monitoring ? *Journal of Abnormal Psychology, 109,* 768-776.

Smith, S. (2007). What is *relational frame theory (part one & two).* Retrieved on August, 18, 2009 From http://www.ironshrink.com/articles.php?artID=071227_ what_is_relational_frame_theory_one.

Spector, P.E., & O'Connell, B.J. (1994). The contribution of personality traits, negative affectivity, locus of control, and type A to the subsequent reports of job stressors and job strains. *Journal of Occupational and Organizational Psychology, 67*, 1-12.

SPSS Inc. (2005). *SPSS Base 15.0 for Windows User's Guide.* Chicago IL: SPSS Inc.

Stavenow, E. (2008). *Acceptance and Commitment Therapy (ACT) To prevent stress and promote health - A pilot evaluation of the impact of ACT in an adolescent group.* Master thesis, March 2008. Institute of Psychology. Copenhagen University. Presented June 2009 at the World Conference on ACT, RFT, and Contextual Behavioral Science, Enschede, The Netherlands.

Steinhardt, M. & Dolbier, C. (2008). Evaluation of a resilience intervention to enhance coping strategies and protective factors and decrease symptomatology. *Journal of American College Health, 56*(4), 445-453.

Stevens, J. (1996). *Applied multivariate statistics for the social sciences (3rd ed).* Boston: Houghton Mifflin.

Stiles, W. B., Shapiro, D. A., & Elliott, R. (1986). Are all psychotherapies equivalent? *American Psychologist, 41*, 165-180.

Strawbridge, S. & Woolfe, R. (2003). Counselling psychology in context. In R. Woolfe, W. Dryden, S. Strawbridge (Eds.), *Handbook of counselling psychology,* (pp. 1-22). London: Sage.

Tashakkori, A. & Teddlie, C. (Eds.) (2003). *Handbook of mixed methods in social & behavioral research.* Thousand Oaks: Sage Publications.

Thalheimer, W., & Cook, S. (2002). *How to calculate effect sizes from published research articles: A simplified methodology.* Retrieved May 25, 2009 from www.work-learning.com/effect_sizes.htm.

The British Psychological Society. (2004). *Guidelines for minimum standards of ethical approval in psychological research.* Leicester: BPS.

The Sainsbury Centre for Mental Health (2003). *The economic and social costs of mental illness* (Policy paper 3). London: SCMH.

Tinsley, H. E. A., & Weiss, D. J. (1975). Interrater reliability and agreement of subjective judgements. *Journal of Counseling Psychology, 22,* 358-376.

Trochim, W. M. K. (1997). *The knowledge base: An online research methods textbook.* Retrieved on August, 20, 2009 from http://trochim.human.cornell.edu/kb/.

van der Klink, J. J. L., Blonk, R. W. B., Schene, A. H., & van Dijk, F. J. H. (2001). The benefits of interventions for work-related stress. *American Journal of Public Health, 91,* 270-276.

Varra, A. A., Hayes, S. C., Roget, N., & Fisher, G. (2005). The use of acceptance and commitment training to increase the impact of training in pharmacotherapy. Cited in Bond, F. W., Hayes, S. C., & Barnes-Holmes, D. (2006). Psychological flexibility, ACT, and organizational behavior. *Journal of organizational behavior management, 26*(1/2), 25-54.

Vera, E. M. (2000). A recommitment to prevention work in counseling psychology. *The Counseling Psychologist, 28,* 829-837.

Vessey, J., T., & Howard, K., I. (1993). Who seeks psychotherapy? *Psychotherapy: Theory, Research, Practice, Training, 30*(4), 546-553.

Vickers, A. J. (2005). Parametric versus non-parametric statistics in the analysis of randomized trials with non-normally distributed data. *BMC Medical Research Methodology, 5*(35) [Electronic Copy], Retrieved on February 2, 2009 from http://www.biomedcentral.com/1471-2288/5/35.

Vowles, K. E., McCracken, L. M., & Eccleston, C. (2007). Processes of change in treatment for chronic pain: The contributions of pain, acceptance, and catastrophizing. *European Journal of Pain, 11,* 779-787.

Walach, H., Buchheld, N., Buttenmuller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring Mindfulness--The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences, 40,* 1543-1555.

Walser, R. D., & Pistorello, J. (2004). ACT in group format. In S. C. Hayes & K. D. Strosahl (Eds.). *A practical guide to acceptance and commitment therapy.* New York: Springer.

Watson, J. B. (1913). Psychology as the behaviourist views it. *Psychological Review, 20,* 158-177. Retrieved on July 1, 2009 from *Classics in the history of psychology,* http://psychclassics.yorku.ca/Watson/views.htm.

Wegner, D. M., & Zanakos, S. (1994). Chronic thought suppression. *Journal of Personality, 62,* 615-640.

Wenzlaff, R. M., Rude, S. S., & West, L. M. (2002). Cognitive vulnerability to depression: The role of thought suppression and attitude certainty. *Cognition & Emotion, 16*(4), 533-548.

West, D. J., Horan, J. J., & Games, P. A. (1984). Component analysis of occupational stress inoculation applied to registered nurses in an acute care hospital setting. *Journal of Counseling Psychology, 31,* 209-218.

White, M. D. & Marsh, E. E. (2006). Content analysis: A flexible methodology. *Library trends, 55*(1), 22-45.

Wicksell, R. K., Melin, L., & Olsson, G. L. (2007). Exposure and acceptance in the rehabilitation of adolescents with idiopathic chronic pain—A pilot study. *European Journal of Pain, 11,* 267–274.

Wijndaele, K., Matton, L., Duvigneaud, N., Lefevre, J., Duquet, W., Thomis, M. et al. (2007). Reliability, equivalence and respondent preference of computerized versus paper-and-pencil mental health questionnaires. *Computers in Human Behavior, 23*(4), 1958-1970.

Williams, M., Teasdale, J., Segal, Z., & Kabat-Zinn, J. (2007). *The mindful way through depression: Freeing yourself from chronic unhappiness.* New York: The Guilford Press.

Wilson, E. J., & Barkham, M. (1994). A practitioner-scientist approach to psychotherapy process and outcome research. In P. Clarkson & M. Pokonry (Eds.), *The Handbook of Psychotherapy* (pp. 49–72). Routledge: London

Wilson, K. G., & Groom, J. (2002). *The valued living questionnaire.* Available from Kelly Wilson. Department of Psychology, University of Mississippi, University, MS.

Wilson, S. A., Becker, L. A., & Tinker, R. H. (1995). Eye movement desensitization and reprocessing (EMDR) treatment for psychologically traumatized individuals. *Journal of Consulting and Clinical Psychology, 63,* 928-937.

Wolpe, J. (1958). *Psychotherapy by reciprocal inhibition.* Stanford: Stanford University Press.

Woods, D. W., Wetterneck, C. T., & Flessner, C. A. (2006). A controlled evaluation of acceptance and commitment therapy plus habit reversal for trichotillomania. *Behavior Research and Therapy, 44,* 639-656.

Woolley, S. R., Butler, M. H., & Wampler, K. S. (2000). Unraveling change in therapy: Three different process research methodologies. *American Journal of Family Therapy, 28,* 311-327.

World Health Organization. (2001). *Atlas: Mental Health Resources in the World 2001.* Geneva: WHO/NMH/MSD/MDP/01.1.

Yaffee, R. A. (1996). A basic guide to statistical research and discovery: Planning and

selecting statistical analyses. In F. T. L. Leong, & J. T. Austin, (Eds.), *The psychology research handbook*, (pp. 193-207). London: Sage Publications.

Zettle, R. D. (2003). Acceptance and commitment therapy (ACT) Vs. Systematic desensitization in treatment of mathematics anxiety. *The Psychological Record, 53,* 197-215.

Zettle, R. D., & Hayes, S. C. (1986). Dysfunctional control by client verbal behavior: The context of reason giving. *The Analysis of Verbal Behavior, 4,* 30-38.

Zettle, R. D., & Hayes, S. C. (1987). Component and process analysis for cognitive therapy. *Psychological Reports, 64,* 939-953.

Zettle, R. D., & Rains, J. C. (1989). Group cognitive and contextual therapies in treatment of depression. *Journal of Clinical Psychology, 45(3),* 436-445.

Appendices

Appendix 1: Functional Contextualism and Relational Frame Theory (RFT)

Functional contextualism

ACT is based on a philosophy of science called Functional Contextualism (e.g., Hayes, 1993; Hayes, Hayes, & Reese, 1988). Functional Contextualism was developed within the behavioural analytic tradition (Hayes, 1993) and is based on a type of contextualism described by philosopher Stephen Pepper in his book *World hypotheses: A study in Evidence* (1942). As a worldview contextualism is affiliated to philosophical pragmatism as described in the work of other philosophers such as Charles Sanders Peirce, William James, and John Dewey (Hayes, Barnes-Holmes, & Roche, 2001). Pepper suggested that philosophy can be organised by the metaphorical language it uses (root metaphor) and by the rules of evidence it embraces (the truth criterion; as cited in Fox, 2008). The root metaphor is often an object or an idea that serves as an analogy of making sense of the world (Fox, 2008) whilst a truth criterion is the measure by which one evaluates the validity of analyses (Fox, 2008).

The root metaphor in contextualism is the ongoing act-in-context, such as 'going to the shop' (Hayes et al., 1999) while the truth criterion in pragmatism and contextualism is *successful working*. Contextualism is not preoccupied with absolute truths but rather, an idea is 'true' as long as it results in effective action or facilitates the achievement of a goal (Fox, 2008). According to James "the truth of an idea is not a stagnant property inherent in it. Truth *happens* to an idea. It *becomes* true, is *made* true by events" (1907/1948, p. 161, as cited by Fox, 2008, p. 58). A contextualist views events and their contexts as part of a whole; thus, for contextualists to engage in an investigation they need to have a practical goal guiding the level of analysis (Fox, 2008). The unique goals of functional contextualism are *"the development of an organized system of empirically-based concepts and rules that allow behavioral phenomena to be predicted and influenced with precision, depth, and scope"* (Biglan & Hayes, 1996; as cited in Gifford & Hayes, 1999, p. 306; italics added). These goals are said to be complete when analytic results indicate behaviour change (e.g., individuals' engage in more adaptive responses; Gifford & Hayes, 1999).

The goals of functional contextualism are central in differentiating ACT from other psychotherapeutic approaches. According to Hayes et al. (1999) there are only two contextual features that can successfully *influence* behaviour and those are, external factors and variables that can be manipulated. According to Fox (2009a) analyses that rely only on prediction of behaviour are insufficient. Therefore relying on cognitive processing, emotions or thoughts may be adequate in predicting behaviour since without taking into account the impact of environmental or historical variables it is unclear how to influence behaviour (Fox, 2009a). ACT is unique in incorporating these analytical goals in its model since internal experiences are always considered in terms of the context (situational or historical) in which they are experienced (Fox, 2009a). This is in agreement with ACT's aim of manipulating the context in which we experience mental activity (i.e., language) instead of changing its form (Hayes et al., 1999).

Relational Frame Theory (RFT)

This section seeks to provide a brief overview of RFT and is not an exhaustive presentation of the theory. The primary sources for writing this section were Hayes et al. (1999), Fox's tutorial on RFT (2009b) and Smith's (2007) overview of RFT. RFT is a modern theory for the development of cognition and language that was largely developed through the work of Steven Hayes and Dermot Barnes-Holmes (2001). RFT came as a response to a gap in Skinner's radical behaviourism and his highly criticised attempts of developing a behavioural account of language (1957). Thus RFT sought to follow on Skinner's footsteps and answer essential questions with regards to the development and functions of human language.

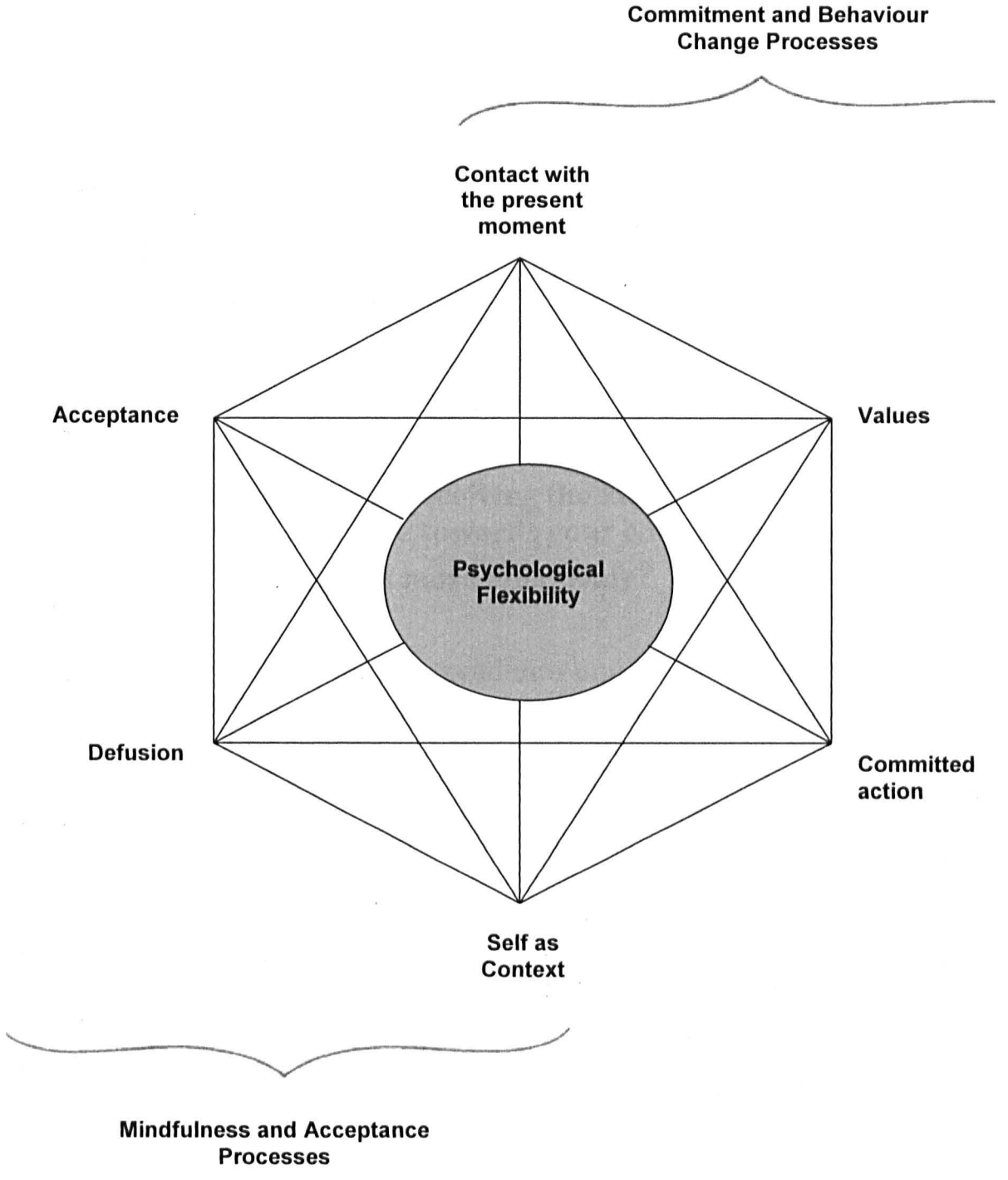
The basic postulate of RFT is that human behaviour is guided by networks of mutual cognitive relations that are referred to as relational frames (Hayes et al., 1999). For humans, relational frames are largely supported by language. According to RFT, what differentiates humans from animals is that cognitive relations do not need to be directly taught through experience but can be derived through already existing relations in language. For example, if I learn that fruits are healthy and that apples are fruits, I can easily derive that apples are healthy. This characteristic has large important implications since humans can learn without direct experience (e.g., you can teach a child not to touch the hot stove without it having to experience the nasty consequences of doing so). Furthermore, several relations can be derived from relatively few pieces of information –notably, derived relations can be both helpful and

unhelpful (i.e., If I know that fruits are healthy, I could assume that I should eat a lot of fruits; I could also assume that non-fruits are not healthy). However, relational frames are far from straightforward and are heavily populated with derived relations. Some examples of relational frames are: same/different, faster/slower, good/bad, better/worse etc.

Derived relations are always bi-directional and therefore humans have the ability to use symbols (language) to refer to a stimulus. Given this bi-directionality symbols take on additional functions such as emotional gravity (i.e., if you like apples your mouth might salivate if someone describes a big juicy apple or you might feel sick if you dislike them). This is essential in psychopathology since humans can become distressed in the presence of thoughts (e.g., painful memories) even if a painful experience is not present. Research in RFT also established that relational frames, once developed cannot be erased. This has implications for humans' attempts to avoid painful thoughts or memories. By thinking something pleasant to avoid the emergence of a painful thought one may actually be enhancing an already existing network by adding another element to it (e.g., I should not be thinking of apples since I dislike them, I will think of butterflies instead –through this process a thought of a butterfly could be added in a relational frame including apples). Given these observations, RFT suggests that the human mind and our ability to learn and develop language offers many advantages, however, it is also the main source of human suffering (Hayes et al., 1999).

ACT's psychotherapy model is based on RFT in that the aim of therapy is not to change cognitions (since relational frames cannot be eliminated) but rather changing the context in which thoughts are experienced. ACT aims to loosen the hold of language by cultivating the ability to recognise language as language (i.e., symbols and sounds) and aims to promote flexible and adaptive behavioural change.

Appendix 2: ACT's model of psychopathology[11]



[11] Adapted from Hayes et al. (2006, p. 8).

Appendix 3: Recruitment material for Studies 1 and 2.

Do any of the following ever interfere with your effectiveness and well-being...

Worry, anxiety, unhelpful thoughts, irritability, low mood or indecisiveness?

Would you be interested in receiving the latest psychological skills training to learn how to move towards your educational and personal goals more effectively?

If you are an undergraduate or postgraduate university student then you have the opportunity to sign up for a one-day psychological skills training program, being conducted **free of charge** as part of a research project at City University. The training will teach you mindfulness and values clarification skills that are designed to help you deal with internal barriers to effective and enjoyable living.

Where do I sign up?
If you want to find out more about this opportunity please email:
psychologicalskills@googlemail.com or call me, Vasiliki Christodoulou on:

This doctoral research study is supervised by Dr. Paul Flaxman, Lecturer in Organizational Psychology at City University.
Tel:
Email:

Department of Psychology
CITY City University London

Appendix 4: Participant Information Letter for Studies 1 and 2

PSYCHOLOGICAL SKILLS TRAINING
PARTICIPANT INFORMATION

Dear Sir/Madame,

Many thanks for your interest in this psychological skills training project. Please read the points below and contact me should you have any questions. The training is being offered as part of a doctoral level (DPsych in Counselling Psychology) research project.

- The aim of the project is to implement and evaluate a brief psychological skills training programme.

- *What's involved?* The group training session lasts for one day (5-6 hours), and is delivered at City University. The training aims to teach you how to deal with the 'psychological barriers' that can interfere with effective and enjoyable living.

- You will be randomly assigned to either an initial training group or to a waiting list. If you are allocated to the training group you will receive the training in {XXX}, whereas if you are allocated to the waiting list you will receive the training two months later {XXX}. As part of the project, you will be asked to complete brief questionnaires on three occasions. These will be sent to you via electronic mail.

- If you are allocated to the waiting list, you will be asked to complete the questionnaires in the run up to your training. The questionnaires include various measures of general psychological well-being. The questionnaires will take approx 15 to 20 minutes on each occasion.

- *What can I expect to gain from the training?* Previous research has found this training to be highly effective in improving psychological well-being and people's ability to move towards their goals. You will be taught specific skills designed to help you deal

with undesirable internal experiences such as stress, anxiety, worry, low mood, and negative thinking. You will also be introduced to techniques that help clarify your core values and goals. The training will be supported with take home materials to help you further develop these skills.

- *What about confidentiality?* As this training will be administered in a group format, participants will be asked to keep the content of the sessions confidential. You do not have to share any personal information during the training session. Your questionnaire responses will only be seen by me. No one else at the University will *ever* know how you personally responded. The questionnaires will be destroyed once the study has been completed.

- Your participation is completely voluntary, so you can withdraw from the project at any time.

- *How will the research results be disseminated?* At the end of the study, participants will be sent a brief report summarising the main findings. The aim is to publish a summary of the findings in a peer-reviewed academic journal. At no point will individuals or individual responses be identified.

- If you have any questions about the training or the research, please contact me by email or phone You may also contact my research supervisor Dr. Paul Flaxman, at
  Alternatively, you may contact Professor Dermot Bowler, who is chair if the Psychology Department Research Ethics Committee.

Yours Sincerely,

Vasiliki Christodoulou

Appendix 5: Recruitment Material for Study 3

Do any of the following limit your effectiveness and well-being...

Worry, anxiety, unhelpful thoughts, irritability, low mood or indecisiveness?

Would you be interested in receiving the latest psychological skills training to learn how to move towards your goals more effectively?

You now have the opportunity to sign up for a one-day psychological skills training program, being conducted free of charge as part of a research project at City University. The training will impart mindfulness and value clarification skills designed to help you deal with internal barriers to effective and enjoyable living. This program is being offered in collaboration with the staff development unit at City University.

Where do I sign up?
If you want to find out more about this opportunity please email:
or call me, Vasiliki Christodoulou on:

This doctoral research study is supervised by Dr. Paul Flaxman, Lecturer in Organizational Psychology at City University. Tel:
Email:

Department of Psychology
CITY City University London

Appendix 6: Participant Information Letter for Study 3

PSYCHOLOGICAL SKILLS TRAINING
PARTICIPANT INFORMATION

Dear Sir/Madame,

Many thanks for your interest in this psychological skills training project. Please read the points below and contact me (psychologicalskills@googlemail.com) should you have any questions. The training is being offered to City University employees as part of a doctoral level (DPsych in Counselling Psychology) research project.

- The aim of the project is to implement and evaluate a brief psychological skills training programme.

- *What's involved?* The group training session lasts for one day (5-6 hours), and is delivered at City University. The training aims to teach you how to deal with the 'psychological barriers' that can interfere with effective and enjoyable living.

- You will be randomly assigned to either an initial training group or to a waiting list. If you are allocated to the training group you will receive the training in {XXX}, whereas if you are allocated to the waiting list you will receive the training two months later {XXX}. As part of the project, you will be asked to complete brief questionnaires on three occasions. These will be sent to you via electronic mail.

- If you are allocated to the waiting list, you will be asked to complete the questionnaires in the run up to your training. The questionnaires include various measures of general psychological well-being. The questionnaires will take approx 15 to 20 minutes on each occasion.

- *What can I expect to gain from the training?* Previous research has found this training to be highly effective in improving psychological well-being and people's ability to move towards their goals. You will be taught specific skills designed to help you deal with undesirable internal experiences such as stress, anxiety, worry, low mood, and

negative thinking. You will also be introduced to techniques that help clarify your core values and goals. The training will be supported with take home materials to help you further develop these skills.

- *What about confidentiality?* As this training will be administered in a group format, participants will be asked to keep the content of the sessions confidential. You do not have to share any personal information during the training session. Your questionnaire responses will only be seen by me. No one else at the University will *ever* know how you personally responded. The questionnaires will be destroyed once the study has been completed.

- Your participation is completely voluntary, so you can withdraw from the project at any time.

- *How will the research results be disseminated?* At the end of the study, participants will be sent a brief report summarising the main findings. The aim is to publish a summary of the findings in a peer-reviewed academic journal. At no point will individuals or individual responses be identified.

- If you have any questions about the training or the research, please contact me by email or phone You may also contact my research supervisor Dr. Paul Flaxman, at
  Alternatively, you may contact Professor Dermot Bowler, who is chair if the Psychology Department Research Ethics Committee.

Yours Sincerely,

Vasiliki Christodoulou

Appendix 7: Participant Debriefing Letter for Studies 1, 2, and 3.

Debrief Letter for 'Psychological Skills Training' Project
City University, London
Department of Psychology

Dear participant,

This letter contains information with regards to a research study that you participated in the period of 2008-2009 for which the data analysis is now complete. This letter seeks to outline the research findings and thank you for your invaluable contribution to this project. As part of this investigation you volunteered to take part in a 'psychological skills training' day which outlined skills for dealing with challenging thoughts and feelings and presented ideas for enhancing your behavioural effectiveness by clarifying your personal values. The project in which you participated was part of a research process including three studies. These investigations administered the training to university students and university employees. The aim of these studies was to explore the impact of a brief preventative training of Acceptance and Commitment Therapy (ACT) on participants' mental health at one and at two months after receiving the training.

The rationale for conducting this series of studies was that brief preventative projects may teach individuals techniques for managing adverse experiences and potentially contribute to better mental health in the long term. Indeed, previous studies administering a similar brief training program indicated beneficial outcomes for the working population and for high-school students over time. To reiterate, this training program was based on Acceptance and Commitment Therapy. This model has established the importance of moving away from attempting to control and reduce challenging internal experiences to cultivating acceptance and mindfulness. Indeed, the relationship between internal control efforts and poor mental health is well-supported in the literature. Subsequently, this training sought to encourage participants to develop a different relationship to their internal material (e.g., thoughts and feelings) by becoming more aware of their internal processes in the present moment and altering their behaviour in view of long-term goals and values rather than based on transient feelings and thoughts. It was maintained that internal experiences can often be uncomfortable

and that humans are often tempted to avoid or control them by engaging in unhelpful behaviours or by engaging in repetitive internal debates which often may enhance distress. The training introduced a series of mindfulness exercises to encourage participants to cultivate awareness and appreciation of the present moment and greater self-acceptance. The program emphasized the importance of cultivating the ability to 'step back' from thoughts and to examine their effectiveness in life rather than being entangled in internal struggles aiming to eradicate adverse thoughts. Indeed, the session utilised a series of metaphors illustrating how internal struggles can often be draining and emphasized the value of pursuing meaningful behaviour whilst recognising that challenging thoughts and feelings will always be part of one's experience.

As a participant you were randomised to either receive the training soon after the recruitment stage (intervention group) or three months later (waiting list group). During this time period you were asked to complete three online questionnaire batteries. The responses of the intervention and waiting list groups were compared to control for any history effects that occurred during that time period. Many participants also wrote comments about whether they thought the training had helped and this information was also used to better-explain the results of these studies. What we were interested to examine was (1) whether a one-day training beneficially improved participants' mental health over time and (2) whether participants' relationship with their thoughts and feelings changed in ways that were consistent with the training (e.g., whether participants were more accepting of their thoughts and feelings).

The results of the studies involving university students indicated that the training was sufficient to improve participants' mental health at one or at two months after they attended the program. The study that involved university employees indicated that participants' mental health remained stable over time whilst the comparison group had deteriorated during this period. It is notable that the results were not as pronounced as those reported by previous studies in this domain which may suggest that a one-day format is relatively insufficient to offer a long-lasting effect. This was supported by participants' comments who recommended a follow-up session or additional reinforcement for enhancing the skills. These recommendations have been taken on board for the development of other research projects. In the two studies that recruited university students there was also evidence that participants' had moderately changed their relationship towards their thoughts and feelings thus becoming

more aware of and accepting of these experiences. In the university employee study there was no evidence of such as change in perspective. In view of participants comments it was concluded that participants may have felt that there was not enough time in their daily routine to dedicate time for developing the training skills. Overall, the findings of these series of studies are important in that they indicate that even a brief, one-day program can have some beneficial impact on participants' mental health and that this type of intervention has potential as a preventative program. These studies have also been educational in terms of improving and strengthening preventative studies that are currently being developed for other populations.

In conclusion, I would like to reiterate my thanks for your commitment and participation in this study and all your valuable contributions on the training day. It is essential to note that this will be the final communication from my self and that your information will now be deleted from any existing records. Please be assured that your personal data (email address and name) were being kept in a safe location and that there is no way that you can be identified in the analytical procedure as all data files are coded anonymously.

If you are interested in reading more about the therapy from which the training program was inspired please contact me for additional literature. Similarly, if you would like copies of the training material, additional details of the studies' results, or have any concerns about these studies do not hesitate to contact me or my research supervisor Dr. Paul Flaxman If you are interested in independently learning more about the topic of this research project you may want to consult:

-a very good website presenting Acceptance and Commitment Therapy theory and research.

Thank you for your participation!

Yours Sincerely,

Vasiliki Christodoulou

Appendix 8: Value and goals assessment exercise (morning session)

The following are areas of living that are valued by some people. Not everyone has the same values, and this work sheet is not a test to see whether you have the "correct" values. **Select two areas that seem most relevant to you and describe your values as if no one will ever read this work sheet.** As you work, think about each area in terms of the concrete goals you may have and in terms of more general life directions. For instance, you may value getting married as a concrete goal and being a loving spouse as a valued direction. The first example, getting married, is something that could be completed. The second example, being a loving spouse, does not have an end. You could always be more loving, no matter how loving you already were. It is important that you write down what you would value if there were nothing in your way. **What is it you care about? What do you want to work towards in the best of all situations?**

1. *Marriage/couples/intimate relations.* In this section, write down a description of the person you would like to be in an intimate relationship. Write down the type of relationship you would want to have. Try to focus on your role in that relationship.

2. *Family relations.* In this section, describe the type of brother/sister, son/daughter, father/mother you want to be. Describe the qualities you would want to have in those relationships. Describe how you would treat the other people if you were the ideal you in these various relationships.

3. *Friendship/Social relations.* In this section, write down what it down what it means to you to be a good friend. If you were able to be the best friend possible, how would you behave towards your friends? Try to describe an ideal friendship.

4. *Career/employment.* In this section, describe what type of work you would like to do. This can be very specific or very general. (Remember this is an ideal world). After writing about the type of work you would like to do, write about why it appeals to you. Next, explore what kind of worker you would like to be with respect to your employer and colleagues. What would you want you work relations to be like?

5. *Education/personal growth and development.* If you would like to pursue an education, formally or informally, or to pursue some specialised training, write about that. Write about why this sort of training or education appeals to you.

6. *Recreation/leisure.* Discuss the type of recreational life you would like to have, including hobbies, sports, and leisure activities.

7. *Spirituality.* This does not necessarily refer to organised religion. What is meant by spirituality is whatever that means to you. This may be as simple as communing with nature, or as formal participation in an organised religious group. Whatever spirituality means to you is fine. If this is an important area of life, write about what you would want it to be. As with all of the other areas, if this is not an important part of your values, skip to the next section.

8. *Citizenship.* For some people, participating in community affairs is an important part of life. For instance, some people think that it is important to volunteer with homeless or elderly people, lobby governmental policymakers at parliament, or local level, participate as a member of a group committed to conserving wildlife, or participate in the service structure of a self-help group. If community-oriented activities of this type are important to you, write about the direction you would like to take in these areas.

9. *Health/physical well-being.* In this section, include your values related to maintaining your physical well-being. Write about health-related issues such as sleep, diet, exercise, smoking, and so forth.

Appendix 9: **Values, goals, actions and barriers form (afternoon session)**

VALUES, GOALS, ACTIONS, AND BARRIERS FORM

Use this form to summarise your two most important values, along with the more specific goals and actions that will move you in those chosen directions. Use the barriers column to identify any internal barriers that might get in the way (e.g., specific doubts, anxieties, indecision, negative thoughts etc.) Remember that the mindfulness techniques will help you to untangle from these internal events, so that you can continue effectively in a valued direction.

Value	Goals	Actions	Internal Barriers

Appendix 10: **Training handout for Studies 1, 2, and 3**

Note. These handouts were developed by Flaxman, P. E. & Bond, F. W. (2006). *Acceptance-Based and Traditional Cognitive-Behavioural Stress Management in the Workplace.* Unpublished doctoral thesis. Goldsmiths College, University of London.

Morning session:

The main aim of the Psychological Skills Training is to teach you how to deal with those psychological barriers that can interfere with your effectiveness.

In this training we defined "being effective" as moving towards valued life goals; and "psychological barriers" as undesirable psychological content – such as anxiety, worry, unhappiness, indecisiveness, nervousness, negative thinking etc. Many people report that these undesirable thoughts, emotions, and sensations can interfere with effective and enjoyable living.

You were then asked to think about:
-What happens in your mind when undesirable psychological content shows up. That is, what does your 'mind' tell you to do with unwanted thoughts and feelings?
-What strategies do you use to deal with these thoughts and feelings?

When asked this question, people often report that they have tried to change them, justify them, rationalise with them, ignore them, deny them, drink alcohol, use "positive thinking", "analyse" the situation, think it through etc. We humans tend to try hard to avoid experiencing negative thoughts and feelings.

How effective are these strategies for dealing with our unwanted thoughts and feelings?
Is it easy to change them, or get rid of them? In the short term? In the long term?

Consider this situation in which a participant used particular strategies in an attempt to stop worrying needlessly about work:

Trainer: "What strategies have you tried to do to stop worrying?"
Participant: "I've tried to talk myself out of the worry by 'thinking things through', and tried to work out why I worry. I've tried relaxing, and doing something not related to work--like watch telly or clean my flat."
Trainer: "Right. Good. Let me ask you this. Your mind says, 'don't worry: relax, watch telly, think things through and then you won't worry'. Right?"
Participant: "Right."
Trainer: "OK, and how has that worked? For example, as you've done what your mind has told you to do, have you been able to stop worrying or even worry less; and, have you

then been able to enjoy or be involved fully in what you need to do?"

Participant: "Sometimes, but not always, and even if I can stop worrying, it's only very temporarily."

Trainer: "Right, so, overall, would you say that you have been able to stop worrying unnecessarily."

Participant: "No, and its a continuous battle: I spend so much time trying to stop worrying that I can't focus on what I'm doing, and I become exhausted. Really, it's not unusual for me to get headaches because of all of the worrying that I do."

Trainer: "Isn't that interesting? It seems like a paradox, doesn't it? I mean, you do what your mind says: do something to stop worrying: watch telly, think it through, clean your flat, but it doesn't work: you still worry."

Participant: "Yes, but what can I do?"

Trainer: "What does your mind tell you to do?"

Participant: "A lot: relax!, you're crazy, do less work, it's not the end of the world if things go wrong, take a break.....It just chatters on!"

Trainer: "Have you done these things?"

Participant: "Of course...I've certainly tried."

Trainer: "And how have they worked? Have they paid off in a fundamental way, so that by doing them you have transformed the situation and you are no longer bothered by worrying? Or are you, unbelievably, sinking in deeper, worrying more, feeling worse?"

Participant: "I feel like I'm sinking deeper: It's like the worry is taking over! I can't relax!"

Trainer: "Incredible, isn't it? I mean if we had an investment advisor with this track record we would have sacked him long ago, but here your mind keeps leading you into efforts that don't really, fundamentally pay off, but it keeps following you around, nattering on, and it is hard not to give it one more go. I mean what else can you do but go along with what your mind tells you to do? But maybe we are coming to a point in which the question will be 'which will you go with? Your mind or your experience?' Up to now the answer has been 'your mind', but just notice what your experience tells you about how well that has worked."

The dialogue above shows how our minds often 'tell us' different ways to get rid of our undesirable psychological content. These strategies are not very helpful in relieving the effects of stress, worry, unhappiness etc.

In fact, our attempts to get rid of our unwanted thoughts and feelings can actually make them worse, so that they 'take over', and interfere with what we are doing. During the training I spent some time discussing why this is the case. The following sections summarise the key aspects of that discussion.

Control and struggle: problematic strategies

In the world *outside* of our skin, we humans tend to live by a rule that goes something like this: ***If you don't like something, figure out how to change it, or get rid of it, and do it.***

This rule reflects the fact that we humans work hard to **CONTROL** the environment around us. Humans have used this control rule to great effect, to make life (at least in the Developed World) fairly comfortable: we have shelter, food, social stimulation, TV, computers, etc.

Unfortunately, the control rule does not work well *inside* our skin. The world inside our skin is very important because it's where satisfaction, contentment, and happiness lie. In the world inside the skin (i.e., in the world of thoughts, emotions, moods, and bodily sensations), the following rule applies: ***If you aren't willing to have it, you've got it!***

In the area of emotions, thoughts, memories, attitudes, bodily sensations, and so on, control strategies are not helpful. In fact, in our internal world, deliberate control can be the problem rather than the solution. This is because when we try to control unwanted thoughts and feelings, we set ourselves up for a "no-win struggle."
This struggle is a problem because:

- It can make the unwanted thoughts and feelings more frequent and more powerful
- It is very stressful and mentally draining
- It draws us away from the present moment
- It often involves us *avoiding* situations

A way out of the struggle

The alternative to struggling with our own thoughts and feelings is for us to be more willing to experience them. If we learn how to be willing to experience emotions and thoughts, without trying to change them or get rid of them, we can step out of the internal struggle.

Clean vs Dirty discomfort

One way to think about the different consequences of being *willing* to have 'undesirables' on the one hand, and struggling with them on the other, is through **CLEAN vs DIRTY DISCOMFORT.**

Clean discomfort is the *primary* discomfort that we all experience in our lives as a function of living. It might be relatively low, as when we feel irritated at someone for putting us down, or it may be high, as when we have a major argument with our partner, or we lose a job.

Dirty discomfort is the *secondary* emotional pain created by our efforts to control the normal, natural *clean* discomfort that we experience. When trying to avoid, control or get rid of clean discomfort, a whole new set of undesirable feelings, emotions and thoughts can appear. Dirty discomfort is the unnecessary addition of fear of fear (e.g., when we become anxious about being anxious), unhappiness about unhappiness, blame about unhappiness etc. We then may try to control the secondary discomfort as well, and so carry on in a vicious cycle of ever increasing struggle.

Stepping out of the struggle: 'mindfulness' exercises

There are a number of mindfulness exercises that you will learn on this course. They are designed to help you to step out of the internal struggle with your own thoughts and feelings. These exercises will teach you how to:

- Experience thoughts and feelings without engaging or struggling with them
- Notice when you have been 'sucked into' your psychological content
- Bring your mind back to the present moment

Mindfulness is a skill. It is like learning any new skill such as swimming or playing a musical instrument: it requires practice. It is unlikely that you will notice any immediate benefits – you have to keep at it anyway! At first you will need to practice the exercises frequently; eventually the skill will become a permanent part of your life. Remember that in the world of thoughts, feelings, and moods, practise makes permanent!

Mindfulness Exercise I – Project thoughts on a screen (exercise 2 on the website).
The screen exercise encourages you to observe your psychological content without struggling with it, and without trying to control it. It also teaches you to notice when your mind has drawn you away, and how to gently bring yourself back to the 'here and now'.

Summary:

- Trying to control or remove undesirable thoughts and feelings is not very helpful.
- The alternative to this "internal struggle" is to learn to be more willing to experience ALL types of thoughts and feelings.
- We can develop willingness by practising mindfulness exercises such as the screen exercise.

Values and Goals Assessment

Learning to be willing to experience *all* thoughts and feelings allows you to move your life in a *valued direction*, even when undesirable thoughts and feelings show up.

When we struggle with unwanted thoughts and feelings they usually become more powerful and central to our lives. As we increase their power, they may start to dictate what we do – for example, we may avoid situations or activities because unwanted thoughts and feelings show up. This is not a very vital way to live because it means that many of our actions are based on how we feel at the time.

We can overcome these internal barriers by becoming more aware of our valued life directions. The **Values & Goals Assessment** sheet will help you do this. The exercise can provide you with a stable 'compass reading' for your life.

Chosen values provide a far more stable compass reading than do our constantly changing thoughts, emotions, and bodily states.

Values vs. goals

- Values are really a general direction
- Values are more global than concrete goals
- Values are the 'glue' that makes a set of goals more coherent
- Values can reduce the likelihood of working at cross-purposes
- Values cannot be fully satisfied or permanently achieved
- If goal achievement does not occur on schedule, values can keep us on track

The trick is to use goals only as a means to engage and maintain a valued direction
Valued directions cannot be pursued if we are concerned with removing particular emotions and thoughts. If we do focus on removing unwanted thoughts and feelings, then, as soon as they show up, we have to stop going in the direction we were going. Because negative thoughts and feelings often show up (that's what they do!), we can't maintain a valued direction for very long if not having them is so important.

Mindfulness Exercise II: Mindful Breathing (exercise 4 on the website). This exercise encourages you to become more aware of when your mind is drifting away from the focus of your experience (in this case your breath) and is drawn into thoughts. This exercise helps you develop an attitude of acceptance with regards to the continuous chatters of the mind and to enhance the skill of bringing your attention back to the "here and now".

Afternoon session:

Taking your mind for a walk
We tried this exercise in the session. It is an enlightening exercise! It shows you that:

- Our minds have a tendency to chatter on, sometimes in unhelpful ways
- You can choose where you want to go, even when your mind is 'chattering on'
- You can think of the chatter as having a radio on in the background – you can still focus on what you are doing, and where you are going.

Get into pairs. One of you will be a person, the other will be that person's Mind. You are going to go outside for a walk, using a special set of rules: The Person may go anywhere he or she chooses; the Mind must follow. The Mind must communicate nearly constantly about anything and everything – describe, analyse, encourage, evaluate, compare, predict, summarise, warn, criticise, and so on. The Person cannot communicate with the Mind. If the Person tries to communicate with the Mind, the Mind must say "Never mind your Mind!". After 5 minutes, and the Mind will monitor the time, you should switch roles. The Person becomes the mind, and the Mind becomes the Person. The same rules will apply for another 5 minutes. Then split up and walk individually for another 5 minutes, noticing that you are still taking a mind for a walk – it is just the familiar mind that is inside your head. When on your own, follow the same rules as before: dispassionately let the Mind describe, analyse, encourage, evaluate, compare, predict, summarise, warn, point out, and so on, without minding back, and go where you want to go.

Distinguishing "you" from your psychological content

This training involves you becoming more willing to accept negative psychological content. It is therefore necessary to find a place within us where this is possible. There is a place or perspective within us that is not threatened by difficult psychological content. This perspective is called the **'Observing Self'**. A cloud and sky analogy is often used to describe it:

- *Think of your emotions, thoughts, bodily sensation etc. as the clouds.*
- *Behind the clouds of psychological content lies blue sky.*
- *We don't need to blow the clouds away every moment to be reassured it is there. When we look, it is there.*
- *When the clouds of verbal chatter can be seen from the point of view of the sky, the clouds are not so threatening.*

The Chessboard

In the training session, a chessboard was used to illustrate the distinction between the observer you, and the content of your life (thoughts, feelings, bodily sensations etc.). Think of the pieces as all the different thoughts and feelings that you experience. Sometimes we engage with, and struggle with the negative pieces, trying to remove them from the board. We can learn to view the pieces from 'board level' and so avoid being sucked into a stressful struggle with our own thoughts and feelings.

Try to develop the habit of asking yourself: "Am I at piece level or at board level right now?" (Remember that the goal is not to be at board level all of the time, but to know that perspective is there. It can help you to avoid needless struggles with negative psychological content).

When you are at board level you are looking **AT** your thoughts, emotions etc. When you are at piece level you are looking **FROM or THROUGH** thoughts emotions etc.

The Observer Exercise (exercise 5 on the website)

The purpose of this exercise is to get you in touch with the observer perspective: the part of "you" you call "I" The negative thoughts, feelings etc. that we often struggle with are not really "you" - they are the content of your life. You are the 'vessel' that carries this stuff around. If this stuff is not "you", why struggle with it?

Values, goals, and actions

In the morning session you received the values and goals assessment sheet. It is very important that you take the time to sit down and work through this sheet. When completing the exercise, ask yourself: "What do I want my life to stand for?"

Furthermore, take a look at the "Values, goals, actions, and barriers form". This summary values form is designed to help you to develop goals, and specify actions, that will move you in a valued direction.

Use your valued directions to generate specific goals and actions. A goal is a specific achievement, accomplished in the service of a particular value. Here is an example:

e.g., **Value** = *contributing to society*
Goal = *to get involved with a homeless charity*
Actions = *volunteer to help out with a soup kitchen for the homeless*

It is important that there is a close connection between the action, its associated goal, and the associated value. Will the action, if taken, actually produce the goal or lead to it?

Some actions may produce immediate results such as resigning from an unsatisfying job, whereas others may move you towards a longer-term goal, for example enrolling at University to obtain a degree.

The best thing is to accumulate small positives – ***little steps taken consistently are better then greater steps taken inconsistently.*** The key thing is that you engage in actions that feel like "steps in the right direction"

Barriers to values, goals, and actions

- Taking action to move towards our goals nearly always stimulates negative thoughts, feelings, and doubts. These may appear to be *barriers* to action.
- They are only barriers to action if we stop taking action, and stop moving towards our goals, when they show up.
- If we do avoid taking actions because negative psychological content shows up, then we can't move in a valued direction for very long, because this stuff will often show up.

Gradually with practice, you will make progress with giving up the struggle, and will adopt a new perspective to your thoughts and feelings, then you can recognise that negative thoughts and feelings don't *have* to be barriers at all.

They are just your thoughts and feelings – your mind stuff (thank you mind!). They are just the pieces on your chessboard, or the "passengers" on your bus. You are bigger than they are you are the 'vessel' that contains them. You can choose where you want to go, and take them with you.

I used the word "willingness" during the training to refer to our willingness to have undesirable psychological stuff come up (negative thoughts, feelings, doubts etc.) ***and still take action.***

Your barriers are mostly thoughts, feelings, memories, doubts etc. They are really inside you, but they sometimes seem to be bigger than they really are. Willingness is an *action* that answers the question that the barrier asks: "Will you have me inside you by choice or will you not?" In order to move in a valued direction, you must answer yes. If you answer no, you have to stop and struggle with it, and we've seen where that struggle leads – nowhere.

Passengers on the bus

The 'passengers on the bus' idea also illustrates how the 'internal struggle' impacts upon our actions, and our life directions. It shows how a valued direction can be lost if we struggle to remove the scary-looking passengers (thoughts, feelings, memories, bodily sensations etc.). These passengers 'threaten' us by saying, for example, "turn left or else". We make deals with them, we do what they say, so that they stay at the back of the bus and keep quiet. Sometimes we get fed up of doing what they say and go to the back of the bus to try to make them get off. We struggle with them for a bit but it doesn't turn out very successfully. It's as if the scary passengers like the struggle. It lets them prove their strength. Also, we have to stop the bus to struggle with the passengers. All the scary passengers can ever do is come up to the front of the bus and make you look at them. That's all they can do.

The bizarre thing is that we give up control where it actually works (moving our lives in a particular direction) by trying to use control where it doesn't work (inside the skin).

Additional material:

1. **Using language to stay out of the struggle:**

Some aspects of language draw us into a struggle with our own thoughts and feelings. The word 'but' is an example of this:

"I wanted to go to see my friends but I was too depressed"

"I love my partner but he/she makes me so angry"

"I'd like to speak at my friend's wedding but I'm too anxious"

Notice how the second half of these examples sort of cancels out the first. It's like saying you would have to get rid of depression, anger, anxiety etc. to make the first part of each of these scenarios possible. If we believe that, then we often start struggling with the emotions, thoughts etc. so that we can do the things we want. Replacing these buts with ***and*** would be a better representation of what is really going on. So, the person in the first example wanted to go ***and*** was feeling depressed.

2. **I'm having the thought that...&.... Thanking your mind for that thought!**

Another aspect of language that draws us into a struggle is when we identify with our own thoughts and emotions. For example saying to yourself "I'm anxious" or "I'm depressed" can make the depression or anxiety seem very threatening. If we get into the habit of actually saying what is really happening, we can again prevent ourselves struggling with negative thoughts and feelings.

For example, instead of "I'm anxious" you could say to yourself *"I'm a person and I'm experiencing some worrisome thoughts and some anxious feelings at the moment."*
Although this may seem a bit strange at first, you can very quickly get the hang of it. Here are some more examples:
Say someone is anxious about giving a public talk. Instead of saying or thinking, "I will mess it up", they could say, *"I'm having the thought that I may make a mess of it. Along with this thought I am experiencing some anxious feelings."*
You could replace "I'm angry" with *"I'm having a feeling of anger."*
This is not offered as a 'proper' or 'correct' way of speaking and thinking. It's just a handy way to use language should we find ourselves tangled up in a struggle with our own thoughts, feelings, bodily sensations etc.

Additional Exercises on the website:

Mindfulness exercise – *leaves on the stream* (exercise 2 on website)
The *leaves on the stream* exercise serves the same purpose as the *screen* exercise. These exercises are useful because they teach you the following:

- That you can "just notice" your thoughts (and feelings)
- What its like when you get drawn into them
- To give up any unhelpful struggles with undesirable thoughts and feelings

Mindfulness exercise – Physicalising Thoughts and Feelings (exercise 6 on website)
This exercise involves a willingness to contact your painful and avoided internal events. The exercise involves letting go of the struggle with these experiences and becoming more able to embrace them. Interestingly, we may observe that during the exercise the target feeling or thought changes becoming smaller or lighter. If this was true for you, you have experienced something important: *the power of avoided events derives more from our unwillingness to have them than from the features they have.*

Summary

The ingredients for successful, vital living:

- Give up the no-win struggle with your own thoughts and feelings. When we try to control undesirable psychological content, we increase the power of that content. It often starts to dictate what we do!

- Distinguish the "observer you" from your constantly changing thoughts and feelings (the observer exercise will help you do this).

- Develop mindfulness, so that you are able to observe your chattering mind, and to notice when you have become caught up in the content of that chatter (conveyor belt, leaves on the stream, and TCM exercises).

- Identify your valued life directions, goals, and actions - what do you want your life to stand for? (Values assessment exercises).

Homework

1. The important thing is that you keep practising the exercises. Over the next three weeks, try to practise one of the mindfulness exercises *everyday*. Then, try to practise an exercise *twice a week*. As you develop this "mindfulness" skill, you can practise untangling yourself from your thoughts and feelings at regular intervals during the day. You can find all the exercises on the CD that you received in the training or on http://www.staff.city.ac.uk/psychstudies/VC/

2. Try to revisit the values exercises that we completed in the training. See if you can monitor and be aware of yourself engaging with small actions that are consistent with your values daily.

Appendix 11: Battery of Questionnaires

INFORMATION ABOUT THE QUESTIONNAIRES

Research identity: [ ]

Before completing the questionnaires, please read the points detailed below.

1. Your responses to these questionnaires will only be seen by the researcher. No one else will ever know how you personally responded.

2. I have allocated you the research identity noted above. Only the primary researcher, Vasiliki Christodoulou will keep a copy of this number and the name to which it refers.

3. Your participation is voluntary. If you do not want to attend the training, or fill out the questionnaires for any reason, you do not have to.

4. Before completing each questionnaire, please read the instructions carefully.

5. The questionnaires take about 15-20 minutes to complete. Please ensure that you complete every item on each questionnaire.

6. Please note that it is important to complete and submit the questionnaires by (date).

7. Do not spend too much time thinking about the items.

THANK YOU FOR TAKING THE TIME TO PARTICIPATE

Depression, Anxiety, and Stress scales (DASS-21)

Please read each statement and circle a number between 1, 2, 3, or 4 which indicates how much the statement applied to you over the past two weeks. There are no right or wrong answers.

The rating scale is as follows:

1 Did not apply to me at all
2 Applied to me to some degree, or some of the time
3 Applied to me to a considerable degree, or a good part of time
4 Applied to me very much, or most of the time

1.	I found it hard to wind down	**1**	**2**	**3**	**4**
2.	I was aware of dryness of my mouth	**1**	**2**	**3**	**4**
3.	I couldn't seem to experience any positive feeling at all	**1**	**2**	**3**	**4**
4.	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	**1**	**2**	**3**	**4**
5.	I found it difficult to work up the initiative to do things	**1**	**2**	**3**	**4**
6.	I tended to over-react to situations	**1**	**2**	**3**	**4**
7.	I experienced trembling (eg, in the hands)	**1**	**2**	**3**	**4**
8.	I felt that I was using a lot of nervous energy	**1**	**2**	**3**	**4**
9.	I was worried about situations in which I might panic and make a fool of myself	**1**	**2**	**3**	**4**
10.	I felt that I had nothing to look forward to	**1**	**2**	**3**	**4**
11.	I found myself getting agitated	**1**	**2**	**3**	**4**
12.	I found it difficult to relax	**1**	**2**	**3**	**4**
13.	I felt down-hearted and blue	**1**	**2**	**3**	**4**
14.	I was intolerant of anything that kept me from getting on with what I was doing	**1**	**2**	**3**	**4**
15.	I felt I was close to panic	**1**	**2**	**3**	**4**
16.	I was unable to become enthusiastic about anything	**1**	**2**	**3**	**4**
17.	I felt I wasn't worth much as a person	**1**	**2**	**3**	**4**
18.	I felt that I was rather touchy	**1**	**2**	**3**	**4**
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)	**1**	**2**	**3**	**4**
20.	I felt scared without any good reason	**1**	**2**	**3**	**4**
21.	I felt that life was meaningless	**1**	**2**	**3**	**4**

General Health Questionnaire - 12

AAQ-II

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

1.	It's OK if I remember something unpleasant.	1	2	3	4	5	6
2.	My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6
3.	I'm afraid of my feelings.	1	2	3	4	5	6
4.	I worry about not being able to control my worries and feelings.	1	2	3	4	5	6
5.	My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6
6.	I am in control of my life.	1	2	3	4	5	6
7.	Emotions cause problems in my life.	1	2	3	4	5	6
8.	It seems like most people are handling their lives better than I am.	1	2	3	4	5	6
9.	Worries get in the way of my success.	1	2	3	4	5	6
10.	My thoughts and feelings do not get in the way of how I want to live my life.	1	2	3	4	5	6

Behavioural Activation for Depression Scale (Activation Scale)

White Bear Suppression Inventory (WBSI)

Freiburg Mindfulness Inventory (FMI)

Appendix 12: Tables indicating normality statistics (K-S results)

Table 22

Normality Statistics for DASS anxiety, DASS depression, ATQ and ATQ-B for intervention and waiting list groups across time points (Study 1: student sample).

Variables		Time 1		Time 2		Time 3	
		df	K-S statistic	*df*	K-S statistic	*df*	K-S statistic
DASS Anxiety	Intervention	29	.23**	28	.25**	24	.23**
	Waiting list	32	.19**	29	.16	22	.24**
DASS Depression	Intervention	29	.12	28	.18*	24	.28**
	Waiting list	32	.23**	29	.16	22	.18
ATQ-B	Intervention	29	.13	27	.21**	24	.21**
	Waiting list	31	.19**	29	.23**	22	.24**

Note: ATQ-B=Automatic thought questionnaire-believability scale; $*p < .05$; $**p < .01$.

Table 23

Normality Statistics for DASS Anxiety, DASS Depression, and GHQ-12 for intervention and waiting list groups at three time points (Study 2: student sample).

Variables		Time 1		Time 2		Time 3	
		df	K-S statistic	*df*	K-S statistic	*df*	K-S statistic
DASS Anxiety	Intervention	35	.18*	21	.20*	19	.20
	Waiting list	36	.11	31	.23	26	.18
DASS Depression	Intervention	35	.20*	21	.25*	19	.15
	Waiting list	36	.17*	31	.11	26	.13
DASS Stress	Intervention	35	.09	21	.13*	19	.18
	Waiting list	36	.11	31	.25	26	.09
GHQ-12	Intervention	35	.16*	21	.21*	19	.23*
	Waiting list	36	.08	31	.12	26	.15

Note: GHQ-12=General Health Questionnaire-12; $*p < .05$; $**p < .01$.

Table 24

Normality Statistics for DASS Anxiety, DASS Depression, and GHQ-12 for intervention and waiting list groups at three time points (Study 3: employee sample).

Variables		Time 1		Time 2		Time 3	
		df	K-S statistic	*df*	K-S statistic	*df*	K-S statistic
DASS Anxiety	Intervention	27	.21*	23	.25**	23	.28**
	Waiting list	31	.26**	28	.18*	28	.24**
DASS Depression	Intervention	27	.21*	23	.21*	23	.26**
	Waiting list	31	.25**	28	.20*	28	.23**
DASS Stress	Intervention	27	.27**	23	.11	23	.10
	Waiting list	31	.14	28	.10	28	.12
GHQ-12	Intervention	27	.19*	23	.19	23	.15
	Waiting list	31	.17*	28	.17	28	.12

Note: GHQ-12=General Health Questionnaire-12; *$p < .05$; **$p < .01$.

Appendix 13: Formula for calculating Cohen's d across studies.

The formula for calculating Cohen's d was:

$$d = \frac{\bar{x}_{tadj} - \bar{x}_{cadj}}{s_{pooled}} \qquad s_{pooled} = \sqrt{\frac{(n_t - 1)s_t^2 + (n_c - 1)s_c^2}{n_t + n_c}}$$

Key to symbols:

d =Cohen's d effect size; $\bar{x}$ = adjusted mean; s =standard deviation; *subscripts: t* refers to the ACT condition (treatment) and *c* refers to the waiting list comparison condition.

Appendix 14: Analytical process for content analysis of participants' feedback.

The analytical procedure was taken from Graneheim and Lundman (2003) and White and Marsh (2006). The meaning unit depicts a section of a participant's communication which was deemed to match the specific category or subcategory. In some cases participants wrote a few words or in other cases one or two sentences. The meaning unit was subsequently narrowed down into a condensed meaning unit and then transformed into a shorter code. Each subcategory might contain several codes to best represent participants' meaning. After developing codes for each meaning unit, these were allocated into categories and subcategories on the basis of similar content. Some overarching themes were also identified to encompass a selection of categories/subcategories.

A. Content area 1: Information regarding practice/ development of ACT skills

1. Category: Timing of practice

Subcategory: Travelling

Meaning Unit	Condensed meaning unit	Code
Sometimes I practiced when on the train to/ from work	on the train to/ from work	On train to/from work
tried out techniques on the tube	on the tube	On the tube
practicing on the tube helps	on the tube	On the tube
on my journey to work	journey to work	On my journey

Helped to switch off by allowing myself the time to observe my thoughts and feelings on the journey to and from work	journey to and form work	Journey to/form work

Subcategory: Before sleep

Meaning Unit	Condensed meaning unit	Code
Breathing exercise- before going to sleep-	before going to sleep	Before going to sleep
I have tried to watch my thoughts... However this did not work... whilst trying to fall asleep, however this did not work for me.	...whilst trying to fall asleep...	Before falling asleep
(Helped to switch off by allowing myself the time to observe my thoughts and feelings on the journey to and from work...)/ Or at home before going to bed.	at home before going to bed	Before going to bed
listening to the tape in the evening before going to sleep	in the evening before going to sleep	Before going to sleep

2. Category: Engagement with training material

Subcategory: Systematic engagement

Meaning Unit	Condensed meaning unit	Code
I have just completed a 10 day introductory course into Vipassana meditation which I found truly inspiring and have been practicing at home daily.	Practicing formal meditation	Practice meditation daily
I have tried to incorporate this into daily life on a moment to moment basis, and have also done some of the meditation exercises we learnt, or my version of them.	Incorporate ideas in daily life and doing some exercises.	Done some exercises/ Incorporated ideas in daily life
reread the notes and practiced the different exercises	Reading notes and practicing exercises	Reading notes/ Practiced exercises
I have been doing some yoga which includes a certain amount of mindfulness.	Doing yoga which includes mindfulness	Practiced meditation

I read and re-read both my notes and the handout from the training.	read and re-read notes and the handout	Reading notes
Really stuck to listening to the cd for over 4 weeks and every evening.	really stuck to listening to the CD for over 4 weeks and every evening	Listening to the CD every evening
Did the exercises daily for a few weeks and have since done them 2 or 3 times a week. I have found them very helpful particularly the breathing and the one about physicalising you thoughts and feelings.	Did the exercises daily for a few weeks and have since done those 2 or 3 times a week.	Exercises daily and 2-3 times a week
The exercises are in my thoughts and capacity to practice and use in day-to-day life as required	The exercises are in my thoughts and capacity to practice and use in day-to-day life as required	Practice exercises as required
I used the visualisation techniques	I used the visualisation techniques	Visualisation exercises
listen to your cd	Listening to CD	Listening to the CD
I practiced the exercises	Practicing exercises	Practiced the exercises

Subcategory: Indirect engagement

Meaning Unit	**Condensed meaning unit**	**Code**
I tried but to be honest I did not apply them directly other than obliquely	tried but to be honest I did not apply them directly other than obliquely	Applied skills obliquely
have tried to remind myself of the basics behind the technique however, I have tended to do this after a situation, rather than during it -it hasn't become automatic	tried to remind myself of the basics behind the technique	Remind myself of techniques
I think about what I was taught	I think about what I was taught	Think about the learning

Subcategory: Interrupted engagement

Meaning Unit	Condensed meaning unit	Code
only a bit after the training	only a bit after the training	Bit after training
tried to act on it after the course	tried to act on it after the course	Tried after course
I have not practiced now in a few weeks	I have not practiced now in a few weeks	Not practiced in weeks
Every evening for 5 days after the course and then pretty much stopped.	Every evening for 5 days after the course and then pretty much stopped.	Stopped

Subcategory: Sporadic engagement

Meaning Unit	Condensed meaning unit	Code
practice it from time to time	practice it from time to time	From time to time
I listened to the cd at times	I listened to the CD at times	At times
Used the exercises a few times but no where near as much as I intended.	Used the exercises a few times but nowhere near as much as I intended.	A few times
I have used the cd given, although not every day	I have used the CD given, although not every day	Used CD, not daily
I tried the exercises	Tried exercises	Tried exercises
much more practice is needed, but I am trying to stay mindful whenever I can	More practice needed but trying to stay mindful	More practice needed
did not make good use of all the exercises	did not make good use of all the exercises	Not good use
I have not practiced in any systematic way	I have not practiced in any systematic way	Not systematically
listened to the CD a few times	listened to the CD a few times	Few times
practiced in limited way	practiced in limited way	Limited way
only a little	only a little	Little

Subcategory: No engagement

Meaning Unit	Condensed meaning unit	Code
haven't done the exercises	haven't done the exercises	Haven't done exercises
I haven't done the exercises recommended once	I haven't done the exercises recommended once	Haven't done exercises
I am not practicing	I am not practicing	Not practicing
I didn't. Mea culpa.	I didn't.	Did not practice
didn't practice at all	didn't practice at all	Did not practice
Not at all..... haven't referred to them once	haven't referred to them once	Did not practice
I just realised I needed to do it and invest in my mind	I just realized I needed to do it	Needed to do it
I haven't practiced the skills	I haven't practiced the skills	Haven't practiced
I did not really	I did not really	Haven't practiced
haven't practiced any of the exercises or skills since the training	haven't practiced any of the exercises or skills since the training	Haven't practiced any
Read some on holiday, however but have not really practiced what I have learned.	Not really practiced what I have learned.	Read some, but not really practiced

3. Category: Reasons for practice

Subcategory: Enhancing concentration

Meaning Unit	Condensed meaning unit	Code
mostly whilst at work, especially when trying to concentrate on tedious tasks- such as marking essays which are not well written	To concentrate on tedious tasks	Trying to concentrate
I tried to use techniques to be more focused on my work, and different approaches to my problems.	To be more focused on work	To be more focused

Subcategory: Managing uncomfortable experiences

Sometimes use them during the day if feeling tense.	During the day if tense	If feeling tense.
Also I take the deep breath exercises as I found those really good for easing tension	Practicing the deep breath exercises	Easing tension
When I am down, I always try to rethink what I have learnt and see if I can help myself.	When down, help myself	To help myself.
I now really watch whether I am feeling uncomfortable or feel I cannot get away from my thoughts. The moment that happens I practice the exercises more consistently.	Watch being uncomfortable or cannot get away from thoughts and practice consistently	When uncomfortable
when I do them they can be relaxing and give me some clarity and perspective back	Relaxing, clarity and perspective	Can be relaxing/ Give clarity and perspective

4. Category: Condition affecting engagement with skills
Theme: motivation

Subcategory: Low priority

Meaning Unit	Condensed meaning unit	Code
haven't got around to it	haven't got around to it	Haven't got around to it
I strongly believe that if I made an effort and was doing at least some of them, my overall contentment would've been greater	If I made an effort my contentment would've been greater	More effort needed
I found it hard to motivate myself as would have to organise myself to download them onto a CD	Hard to motivate self to organise	Hard to motivate
It felt like just one more thing to do and it went to the bottom of the pile because it was not urgent.	One more thing to do and when at bottom of pile	One more thing to do
The files did not get copied to my MP3 player for ease of use...	Files did not get copied to my MP3 player	Did not get copied
(99% is about lack of time...) and 1% motivation- I add the 1% because I know that deep in myself I remain sceptical about these kind of skills	99% lack of time and 1% motivation because of scepticism about skills.	1% motivation

had I practiced the skills a few days after the training, I may have used them	If practiced after training may have used skills	If practiced early... May have used
I did not get round to reading the material handed and this may have helped out	Did not get round to reading material	Did not get round to it

Subcategory: Enthusiasm

Meaning Unit	Condensed meaning unit	Code
And my enthusiasm wore off after a while	Enthusiasm wore off	Enthusiasm wore off
I was enthusiastic initially but when it came to a time when I could have put this into practice I can't say that I used it or found it helpful.	Initially enthusiastic but didn't use skills or found them helpful	Enthusiasm lost

Subcategory: Forgetfulness

Meaning Unit	Condensed meaning unit	Code
sometimes used skills well & other times forget to use	Other times forget to use skills	Other times forget
I have found that I forgot about it though until this last questionnaire came through	Found that I forgot it	Forgot about it
can't remember what I did in the course	can't remember what I did in the course	Can't remember
Forgot to use them!!!!	Forgot to use them!!!!	Forget to use
I have not practiced now in a few weeks- although I will again now you've reminded me!	Not practiced in weeks, will now you reminded me.	Need for reminding
Send polite reminders to practice the exercises, as it's easy to put the notes in a draw and forget about them.	Need for reminders to practice, easy to put in a draw and forget.	Easy to forget
Fortnight after training was intense and hectic so forgot/... So eventually forgot about the resources made available.	Life intense and hectic and forgot.	Eventually forgot

Subcategory: Need for reinforcement

Meaning Unit	Condensed meaning unit	Code
one meeting does not seem enough for me	One meeting not enough	One meeting not enough
interested in attending more sessions like that on a regular basis	Interested in more sessions	More sessions needed
As time progresses I notice the bad habits creep back! Need reinforcement.	As time progresses bad habits creep back! Need reinforcement.	Need for reinforcement
I think I might have a follow up day. I would maybe give out a practice schedule/sheet. You could send reminder emails about practice...	I'd have a follow-up day or give out practice sheet or reminder emails.	Follow up day or schedule/sheet or reminders
encourage participants to form a group to meet regularly and practice the skills	Encourage the formation of group to practice	A group to practice
I would offer a course rather than a one-day event to get over the problem of people not practicing	A course rather than one-day	A course instead of day
a follow up session (just something short...) might have been useful for this	Follow-up session	Follow up session needed
Perhaps a follow up half day session to check on progress, a month after the training day.	A follow up half day session to check on progress.	Follow up session needed

Subcategory: Need for perseverance

Meaning Unit	Condensed meaning unit	Code
unfortunately required a lot of practice	Required a lot of practice	Required practice
It really did help to have been told to keep going for four or more weeks consistently.	Helped to been told to keep going consistently	Helped to be told to keep going
I found it hard to keep going at the beginning, as some of my usual avoidance mechanisms' kept getting in the way.	Hard to keep going due to usual avoidance mechanisms	Hard to keep going
Without the discipline of working in a group, it's very hard to make	Without discipline of group hard to keep going	Need for discipline and commitment

the commitment to keep going with them		

Subcategory: Mood

Meaning Unit	Condensed meaning unit	Code
It depends on whether I am in the mood	whether I am in the mood	Depending on mood
didn't practice cause I am going through an emotionally stable period of my life	Cause I am going through emotionally stable period	Emotionally stable
How positive or negative I was feeling. Often... I was feeling too negative and lost in my feelings to do the exercises	How I was feeling, if too negative didn't do exercises	How I was feeling

Subcategory: Requiring proof

Meaning Unit	Condensed meaning unit	Code
the theory sounds great but I have never really experienced any personal effect, however given that I have never really tried, I know this is purely a pre-judgement that unless I find time to dismantle by practicing those skills it will stay with me forever	Theory great but pre-judgement about not seeing personal effect	Pre-judgement about seeing personal effect.
maybe give participants homework, asking them to practice one/two of the skills two/three times the following week and reflect back to u the impact it has as that would make them aware of how it supports them and more likely to use the skills later on	useful to become aware of how this is supportive to be more likely to use the skills later on	Homework for people to reflect and realise impact.
More case studies. To hear more practical examples of how people use the skills to help them in real life.	Need to hear practical examples of people using skills	Practical examples of how people use skills.
I tried a couple of times but it didn't work in the sessions and it didn't work after the sessions	Tried but it didn't work	Tried couple times, didn't work

I have tried to watch my thoughts... however this did not work for me.	Tried to watch my thoughts...this did not work for me	Tried to watch thoughts, did not work

Subcategory: Reinforcing factors

Meaning Unit	Condensed meaning unit	Code
The fact I am motivated for my studies but sometimes meet some difficulties	Motivated for studies and meet difficulties	Motivated
In my personal life (motivated) to become more sociable and listen to others	Become more sociable and listen to others	Motivated
I wanted to explore a different way of dealing with difficult situations	wanted a different way of dealing with difficulties	Wanted different way of dealing with difficulties

Theme: Practicalities as barriers to practice

Subcategory: Personal Circumstances

Meaning Unit	Condensed meaning unit	Code
Have to do other homework for my course and two different therapies I've been doing -so not much time left	Other homework Not much time left	Not much time left
Time. Combination of very busy indeed hectic work-life... (and persistent ill health)	Time, very busy life.	Busy work-life
Mostly time to listen to the cd. Have been working an excessive number of hours & having the time to just sit & listen to the CD was hard.	Time, working excessive number of hours	Working excessively
The time I can find in my life influences the extent of my practice.	Time influences extent of practice	Time influences practice
Pressure of current commitments prevented me from finding time-... This term has been unusually busy for me...	Pressure of commitments, unusually busy	Commitments preventing finding time
The only problem is finding the time to practice those skills, which is connected with my priorities too	Problem is finding the time and this is connected with priorities	Problem finding the time
Or didn't have time	Didn't have time	Didn't have time

I listened to the CD at times but could not do it all the time as it would take up a lot of spare time.	It would take up spare time	Would take up a lot of time
Only a bit after the training - time being the only reason to do that.	Time being the only reason	Time the only reason
I find that time is often quite full, particularly having 4 assignments ongoing during two months since the training, plus the Christmas period and being unwell	Time is often full having assignments, holidays and being unwell	Time is full
Free time...	Free time...	Free time
If I had free time to do it i.e. homework, coursework due in.	Free time to do it	Free time
Coursework, being tired, and time	Coursework, being tired, and time	Coursework, tired, time
And I don't have a lot of free time	Don't have a lot of free time	Free time
Time mostly	Time mostly	Time
time management played a large part	Time management	Time management
Time and patience...	Time and patience...	Time
time	Time	
Having the time available to devote to the exercises properly...	Having time available	Time available
general working life in that sometimes there is not enough hours in the day to do all your activities have a social life and work	Not enough hours in the day	Not enough hours to do all activities
Going to bed early	Going to bed early	Bed early
I was feeling tired and did not do it	Feeling tired	Feeling tired
My schedule! Also I have some family stuff going on that has taken up a lot of my free time and made it hard to practice as much as I'd like.	Schedule and family stuff taken up free time.	Schedule and other stuff taking up time
....persistent ill health	Ill health	Health
a combination of starting holidays and coming down with some of the winter viruses	Combination of holiday and winter viruses	Holidays/ health

Difficult personal circumstances.	Difficult personal circumstances.	Personal circumstances
skills need to be learnt at times when one has the capacity to learn them well	Skills to be learnt when one has capacity to learn them.	Capacity to learn

Subcategory: Privacy

Meaning Unit	Condensed meaning unit	Code
I live with my partner and am slightly embarrassed to be heard doing it	Slightly embarrassed to be heard doing it	Embarrassed to be heard
CD wouldn't play in my CD player so I had to use one in another room, which wasn't very private and it was a bit difficult finding the time when no-one else was in	Had to use CD in room which wasn't very private and difficult finding time alone	Hard to find privacy
if I was alone at home i.e., no distractions from other people in the house	if I was alone at home i.e., no distractions from other people in the house	Hard to find privacy

Theme: Challenges with application

Subcategory: Difficulties

Meaning Unit	Condensed meaning unit	Code
I found it difficult to practice the mindfulness and focus on imagining myself as a movie	Difficult to practice and imagine self as movie	Difficult to practice mindfulness
Not always easy but have seen some benefits	not easy but seen benefits	Not easy
found the breathing exercise difficult and I ended up getting involved in thinking about whether I was breathing in the most effective way i.e. from the diaphragm etc and this ended up with me having coughing fits. by projecting my thoughts on to an imaginary screen this helped to calm my breathing but that was my adaptation and not from the training	Breathing exercise difficult and ended up involved in thinking about effective breathing.	Breathing exercise difficult
I found some of the exercises difficult and don't think I was 'open' to the experience of them	Exercises were difficult, wasn't 'open' to the experience of them	Exercises difficult

Good to learn to understand my mind and thoughts and how I should deal with it. Whether I can practice the theory is another matter.	Good to lean how to deal with mind and thoughts but uncertain of ability to practice theory.	Uncertain of ability to practice theory.

Subcategory: Lack of focus

Meaning Unit	Condensed meaning unit	Code
Sometimes/ often hard to focus and utilise the training...	Hard to focus and utilise training	Hard to focus
I was not that much focused	Not that much focused	Not focused
useful if focused to using them more	Would be useful if focused to use them more	Useful if focused

Subcategory: Personal preferences

Meaning Unit	Condensed meaning unit	Code
"Pseudo-hypnotic" ...not my thing... Unhelpful	exercises not my thing	Not my thing
I don' think this particular training works best for me	Training not for me	Not for me
I don't like the breathing exercise as I don't find it helpful in any way	I don't like breathing exercise	Don't like exercise

B. Content area 2: Impact of training

1. Category: Cognitive/Emotional impact

Theme: Psychological Flexibility

Subcategory: Acceptance

Meaning Unit	Condensed meaning unit	Code
I can feel my feelings without reacting to them quite as much	feel my feelings without reacting	Can feel emotions without reacting
It has helped me recognize that all of my thoughts and feelings are important and necessary to make me who I am and although some things	Thoughts and feelings important and all part of experience	Recognise that thoughts and feelings are important.

are worse or more difficult to deal with than others they are all part of the experience.		
there is a way of living with your thoughts rather than change manipulate or "switch off"	Way of living with thoughts rather than manipulate or "switch off"	Living with thoughts
Realised that there are alternatives to distracting yourself when facing difficult times	alternatives to distraction	Realised there are alternatives to distraction
able to accept certain feelings that I feel, and not feel bad about them anymore, as it is part of me	accept feelings as part of me	Able to accept feelings as part of me
keep trying to accept them at difficult times (thoughts)	trying to accept (thoughts)	Trying to accept thoughts
I accept being uncomfortable in certain situations much more... It just is rather than feeling that I need to do something about this to resolve or avoid the situation. (I am also aware that I would like this to happen more quickly in certain situations, but am not as critical about the time it takes me to 'tune in' to my thoughts or emotions.)	Emotional acceptance preferable to struggling with emotions or avoidance	More acceptant of being uncomfortable
I have found that my acceptance of emotions has meant I am able to tolerate situations much better where there are difficult emotions in play for me or for other people.	acceptance means tolerating situations better	Accepting emotions helps tolerate situations better.
I have experienced a rollercoaster of emotions. I assume this is because I have been more willing to accept their presence in my life rather than running away from them or trying to ignore or displace them elsewhere.	More willing to accept emotions rather than ignoring or avoiding	More willing to accept emotions.
I am not sure yet if this is the right decision as I feel uncomfortable and uncertain. However, I am able to	Ability to tolerate discomfort and uncertainty	Better able to tolerate discomfort and uncertainty.

tolerate the discomfort and uncertainty better that I would have done before.		
I have had a difficult time at work, where I have been anxious and upset... Rather than trying to displace these, I have tried to do the exercises more often, in order to be able to accept the emotions I have been experiencing.	anxiety and upset, did not displace these but tried to accept emotions	Tried to accept emotions rather than displace them.
have consciously sought to not to fight with my negative thoughts	attempted not to fight with negative thoughts	Not fight with negative thoughts
After the training I find myself embracing the thoughts and its seems to work that (the more I embrace it the easier it is to deal with the situation.)	embracing thoughts easier to deal with situation	Embracing thoughts
Two things said really stuck in my mind: that I was not aiming at being happy but at experiencing what was actually going on and the chessboard example.	not aiming at being happy but experiencing what was going on	Aiming to experience what is going on.
I found the part of general thinking to be a useful tool; this is where you think so much about taking a thought out of your mind that it keeps coming back.	Useful tool to know that when you think about taking a thought out it keeps coming back.	Think a lot about removing a thought and it comes back
Most of the time is just acknowledging the feelings and thoughts that I have, and do not push it to the back of my head or by keeping myself busy to avoid those thoughts/feelings.	Acknowledging feelings and thoughts and not push them to the back of my head or avoiding them.	Acknowledging feelings and thoughts, not push it back
I am substantially more mindful although with significant room for improvement. I do not fight my thoughts any more which has released a lot of energy for other things in life...specifically the chessboard perspective and leaving room for all the thoughts without fighting them.	More mindful/ not fighting with thoughts releases energy for other things.	Not fighting thoughts releases energy.
(Generally, I am more conscious of my thoughts and...) do keep trying to accept them at difficult times	More conscious and try to accept	Trying to accept thoughts.

Believe more in myself and forgave myself for past chastisement, I had done a good job on myself inspire of my difficulties. realized am a good person more often unlike before when I always think am bad and others were better	Believe more in self and forgave self, realised I'm a good person more often.	Self-forgiveness
I am less hard on myself, and that has impact on almost all aspects of my life, in work and personal life.	Les hard on myself which has had a positive impact on life	Less hard on self
(I accept being uncomfortable in certain situations much more... It just is rather than feeling that I need to do something about this to resolve or avoid the situation.) I am also aware that I would like this to happen more quickly in certain situations, but am not as critical about the time it takes me to 'tune in' to my thoughts or emotions.	Not as critical about the time it takes me to 'tune in' to my thoughts or emotions.	Less critical

Subcategory: Increased awareness

Meaning Unit	Condensed meaning unit	Code
I am more aware of myself speak after the exercise we did.	More aware of my self speak	Aware of self speak
Generally, I am more conscious of my thoughts and... (do keep trying to accept them at difficult times (thoughts)	More conscious of thoughts	More conscious
made me think more about some of my reactions to situations	think of my reactions to situations	Aware of reactions
useful in making me more aware of my thoughts and (thus a little better equipped to deal with daily pressures)	Made me more aware of thoughts	Aware of thoughts
No impact other than a slight general increase in awareness in the field of thoughts, mind, and how they interact with each other and with me and my body.	Slight increase in awareness of thoughts, mind, and their interaction.	Increase in awareness in thoughts and mind

The training has made me much more aware of my thoughts and how I handle them.	Much more aware of thoughts and how I handle them	Aware of thoughts and how I handle them
Overall awareness of my thoughts and how I am using them and handling them.	Awareness of thoughts and how I am using and handling them	Awareness of thoughts and handling them
Made me more aware of my thoughts.	More aware of my thoughts	Awareness of thoughts
greater self-awareness	greater self-awareness	Self-awareness
"Listening to the other mind". It made me realize how often I am influenced by external factors, especially when trying to complete stressful work related tasks	Realize that I am influenced by external factors when completing stressful tasks	Realize when influenced by external factors

Subcategory: Defusion

Meaning Unit	Condensed meaning unit	Code
I am much better at putting difficult emotions to one side and observing them.	Good at putting emotions to one side and observing	Difficult emotions to one side and observing
it helped me look at things in a new way so as to be less stressed about things out of my control like excess paperwork	Looking at things in new way and be less stressed when things are out of my control	Look at things in new way.
Often I have just tried to return my mind to keeping everything on the chessboard!	Often try to return my mind to keeping everything on chessboard!	Chessboard
Step back, chessboard not pawn	Step back, chessboard not pawn	Step-back, chessboard
I have found that the exercises have made a difference to the way I think about things	Exercises made a difference to way I think	Different way of thinking
Again the mind thinking stuff is something I refer to now	I refer to mind thinking stuff now	Mind thinking stuff
I was quite astonished to realise that I found it easier in some way to pay less attention to what the other person was saying than to my own thoughts	Astonished to realise it's easier to pay less attention to others than to my thoughts.	Easier to ignore others than own thoughts
remember that I am a chessboard, not a piece	remember that I am a chessboard, not a piece	Chessboard not piece
I tried to distance myself from my	Tried to see unpleasant thoughts for	See thoughts as thoughts

thoughts and see unpleasant thoughts and worries as what they are: thoughts and not reality	what they are: thoughts and not reality.	
Tried the disk but more often I have just tried to return my mind to keeping everything on the chessboard!	Often I have tried to return my mind to keeping things on the chessboard!	Tried to keep everything on chessboard
I have found myself 'stepping back' and watching my thoughts and feelings a lot more.	Found myself 'stepping back' and watching thoughts and feelings	'stepping back'/ watching thoughts and feelings

Subcategory: Impact on mood

Meaning Unit	Condensed meaning unit	Code
In getting serenity and tranquillity	getting serenity and tranquillity	Serenity and tranquillity
Much calmer internally, less anxious about things	Much calmer internally, less anxious about things	Calmer, less anxious,
I generally feel more content and calm	I generally feel more content and calm	Content, calm
gained some new tools that help me on a daily basis to cope with thoughts and feelings	new tools that help me cope with thoughts and feelings	Cope with thoughts and feelings.

2. Category: Action

Subcategory: Dealing with situations

Meaning Unit	Condensed meaning unit	Code
look at approaching stressful or bad situations in a different light	Approaching difficult situations in different light	Approaching bad situations in different light.
Clearer about my values... I am more able to navigate my way through these situations rather than being overtaken by my emotions.	Clear of values, ability to navigate difficult situations and not paralyze by emotions	Able to navigate difficult situations.
I have tried to remember to use the techniques when undertaking new tasks/experiences	Tried to remember techniques when undertaking new experiences	Using skills when undertaking new tasks.
I feel that I have opt for a more relax approach when dealing with difficult situations than I did before.	More relaxed when dealing with difficulties	More relaxed in difficult situations

I have started many new things this year and have enjoyed the experience of learning new things and training my brain to accept and learn these new things.	Started new things and enjoy learning and accepting them.	Enjoying new activities.
It helped me resolve a problem that I had at the time, but it was difficult to apply to other problems afterwards.	Helped resolve a problem but difficult to apply to other problems.	Resolved a problem.
I have not directly practiced the exercises after the training...I have applied some of the skills to difficult situations I have to deal with both at work and at home.	Not practiced directly but applied skills to difficult situations at work and home.	Dealing with difficult situations.
(useful in making me more aware of my thoughts and) thus a little better equipped to deal with daily pressures	Aware of thoughts and equipped to deal with pressures	Better equipped to deal with pressures.
(After the training I find myself embracing the thoughts and its seems to work that) the more I embrace it the easier it is to deal with the situation.	The more I embrace thoughts the easier it is to deal with situation	Whilst embracing thoughts easier to deal with situation.

Subcategory: Reduced avoidance

Meaning Unit	**Condensed meaning unit**	**Code**
I accept that the anxiety and nerves will be there but I feel in control of them and this enables me to do what I need to do- be that have my tooth taken out (anxiety at the dentist) or participate in a course (nerves from speaking in front of people I don't know).	Accepting difficult emotions in the service of appropriate action	Anxiety and nerves will be there but [I feel I can do what I need to].
Aware of trying to deal with things rather than push them away... It is my natural behaviour is to bury my head in the sand rather than face things!	Aware of dealing with things more than push them away.	More likely to tackle difficulties than avoid.
Main factor was... Trying to focus and get smaller things done, / not to use excuses to stop me from getting on with things. The exercises have since enhanced these ideas and feelings.	Focusing on doing small things without using excuses to stop me.	Focus with completing small things.
...but on some occasions I was aware that I have changed my behaviour and this has led to not succumbing to negative thoughts when previously I might have.	Aware of changing behaviour and not succumbing to negative thoughts.	Changed behaviour so as not to succumb to negative thoughts.

when experiencing anxiety or feeling nervous about doing something I am starting to recognise that these are natural thoughts brought out by doing something difficult and are not necessarily threatening thoughts, which will take over and cause me to act differently.	Recognized feeling anxious or nervous when doing something difficult is not threatening and doesn't have to take over.	Recognise that nervousness thoughts are natural, not threatening.
when faced with a difficult problem or feelings of inactivity, this is helping me towards my goal, it has made a difference	Tackling problems and inactivity to move towards goal	It's helping towards my goal when faced with problem or inactivity.
Learnt not to panic so much, to figure out what was bothering me, and then formulate a way to deal with it. This 'plan of action' made me feel more in control of my life, and that I was living in a proactive way	Learnt not to panic, to figure out problem and way to deal with it, this helped me feel in control of my life.	Problem-solve/ proactively
I have been a bit more confident in making decisions at a higher level than I've previously had to do	Confident in decisions	More confident in making decisions

Subcategory: Value-orientated behaviour

Meaning Unit	Condensed meaning unit	Code
I have begun to clarify my values and am finding that I am moving my life towards my values.	Begun to clarify and move towards values	Moving towards values.
My long term goals will not all happen at once so I realized that it would start this year doing lots of smaller things, a little bit at a time, so I would eventually get to the bigger picture. This has given me more peace of mind/ and direction for the next few years.	Doing small bits of a goal, peace of mind.	Doing smaller things/ Sense of direction.
As a result of clarifying my values, I have realized that the direction of my job was not in the right direction of my own values... I have resigned to pursue work in an area more alight with my values	Job not in direction of values and resigned to find more preferable work	Pursue work alight with values.
I am able to make more time for the tasks that I need to do and also to wind down by exercise, socializing and creating a relaxing atmosphere at home.	Investing more time in important activities	Able to make time for tasks.
eye opening of possibilities of how I can reinvent my goals	Ideas of reinventing goals	Reinvent my goals.
put my thoughts about certain things into order	Thoughts in order	Put thoughts in order

3. Category: Suppression agenda

Meaning Unit	Condensed meaning unit	Code
through visual exercises find they distract my thoughts the most	Visual exercises distract my thoughts	Visual exercises distract thoughts
I have thought about it a lot when I have sometimes had problems sleeping because I can't switch my mind off from an issue (I'm afraid I can't say that I've managed to stop that happening!)	Haven't managed to switch my mind off	Can't switch mind off
by thinking something completely different I managed to get to sleep most times	Thinking something different helped me sleep	Thinking something different
learn a few things about how to control my thoughts	Learnt how to control thoughts	Learnt to control thoughts
impossible to avoid the feeling of frustration and stress	Impossible to avoid feelings	Difficult to avoid feelings
Working for every single night over the past few months without any form of reimbursement makes me feel extremely tired and stressful and depressed. The exercise may clam down my emotions for a few seconds but it cannot lift my mood or help myself cope with the unpleasant thoughts about things/people.	Exercises cannot lift mood or help cope with unpleasant thoughts	Calm down for short time but does not relieve thoughts or mood

4. Category: Narrow impact

Subcategory: Uncertainty

Meaning Unit	Condensed meaning unit	Code
Don't know	Don't know	Don't know
I'm not really sure to be honest. I left the course a bit mixed up -on the one hand I felt inspired by the things that I could achieve but on the other I felt like I didn't really learn anything specific	Not really sure, left mixed up inspired but not having learnt anything specific	Not sure, mixed up
None, as did not use...although having said that I wonder if they had some effect but I don't remember... Cos for some reason I feel more positive	None, although wonder if some effect	None, although wonder if some effect

Whether or not this success and resultant good feeling is done to thinking about the "values bus" is moot (but yes, I DO still think about the "values bus" the "chess board" and the other metaphors, so they are in there somewhere!)	Moot whether success is due to thinking of "value bus", but I DO think about it.	Success due to "values bus" is moot

Subcategory: Limited impact

Meaning Unit	Condensed meaning unit	Code
Little impact to date	Little impact	Little impact
A bit	A bit	A bit
Not much I'm afraid.	No much	Not much

Subcategory: No impact

Meaning Unit	Condensed meaning unit	Code
Didn't feel they impacted me. I felt that the concepts were at times quite abstract.	Didn't impact me	Didn't impact me
None	None	None
I cannot see that it had an immediate impact on my life both for work or home	Cannot see impact	Cannot see immediate impact

SECTION C

CBT Self-help Material for Depression: Covering New Ground?

1. Introduction

Almost 40 years ago, Neal Miller (APA's 1961 president) envisioned giving "psychology away by teaching people how to help themselves" (Rosen, 1993; p. 340). Today, Miller's aspiration is well under way as it appears that self-administered treatments "are here to stay" (Scogin, 2003, p. 247). For instance, the National Service Framework for Mental Health underlines the importance of self-help noting that it can serve as an accessible treatment option (DH, 1999). Indeed, self-help material are currently offered as part of a new Improving Access to Psychological Therapies initiative in the UK as a low impact intervention for depression and anxiety (DH, 2008). The term self-help is used to describe several material including books, self-administered therapy manuals, autobiographies (Norcross, 2006), computer-assisted treatments (e.g., Gega, Marks, & Mataix-Cols, 2004), audio and video tools (e.g., Wedding & Niemiec, 2003; Lampropoulos, Kazantzis, & Deane, 2004) and internet-based interventions (e.g., Orbach, Lindsay, & Gray, 2007). For the purposes of this review we will focus on bibliotherapy and computer-assisted treatments developed within a cognitive behavioural therapy framework (CBT; e.g., Beck, Rush, Shaw, & Emery, 1979).

Despite abundant research in the effectiveness of written and computerised self-help there is little discussion of the role of the counselling psychologist in developing, selecting, or recommending these tools in practice. It is suggested that this material is of particular relevance to counselling psychology in theoretical and practical terms. As evidence-based practitioners it is our professional responsibility to reveal their potential effectiveness. Furthermore, Counselling Psychologists emphasize the importance of the therapeutic alliance in therapy (Horvath & Symonds, 1991). In fact, some authors argue that the quality of this relationship is more important than the treatment model (e.g., Safran & Muran, 1995). In view of this, the increased availability of material labelled 'self-help' introduces important questions regarding the amount of therapist contact necessary for therapeutic change and questions the independence of such material. This review will focus on exploring the effectiveness of written (bibliotherapy) and computer-assisted self-help treatments for depression with reference to the amount of therapist support offered alongside this material. Depression is often addressed by self-help material (Williams, 2001), and is arguably one of

the most frequent mental disorders constituting a leading cause of disability (Berto, D'Ilario, Ruffo, Virgilio, & Rizzo, 2000; Üstün, 1999).

This review is divided in three sections. The first section outlines studies researching the efficacy of written self-help for depression within a CBT model whilst the second section reviews studies addressing the effectiveness of computerised CBT self-help material for depression. The final discussion section aims to synthesize information to clarify which material appears to be effective, in what situations and for whom. It further seeks to highlight how much therapist support is required for the effective implementation of self-help whilst considering the role of counselling psychologists in self-help materials' use, development, and administration. Finally this review outlines directions for future research.

2. Written Self-Help (Bibliotherapy)

The popularity of self-help books is indisputable. Rosen (1993) pointed out that in the United States self-help books are published at the rate of 2,000 per year. A more recent phenomenon emphasizing this demand is the emergence of self-help prescription manuals (published catalogues of self-help books; e.g., Stanley, 1999). Furthermore, in a UK survey of accredited therapists, 94.8% of practitioners who recommend self-help indicated that they made use of bibliotherapy (Keeley et al., 2002). In a seminal paper, Gould and Clum (1993) conducted a meta-analysis of 40 randomized controlled trials that investigated the effectiveness of (mainly written) self-help material for various disorders. These authors concluded that written self-help was an effective intervention and reported a large mean effect size of d=.76 (at post-test). Gould and Clum (1993) suggested that this effect size was comparable to effect sizes reported in meta-analytic studies examining the effectiveness of psychotherapy (e.g., Shapiro & Shapiro, 1983). Even though Gould and Clum's meta-analysis was carefully constructed, conclusions need to be considered with caution as there were gaps in their approach. The analysed studies targeted different problem areas (i.e., depression, smoking cessation, dieting, fear etc.) and thus, the issue of population heterogeneity should have been addressed by the authors. In addition, the study failed to report the methodological quality of the analysed trials (i.e., there was no consideration of sample size, recruitment procedures or statistical power). Despite these limitations, Gould and Clum's study can be considered as a point of departure in the self-help literature.

Another meta-analysis was conducted by Cuijpers (1997) who re-examined six randomised controlled trials of bibiliotherapy for depression. Cuijpers concluded that bibliotherapy with minimal therapist contact was effective –compared to no-treatment control groups- producing a high, mean effect size of .83. Again, this effect size was comparable to effect sizes reported in reviews of face-to-face psychotherapy for depression (e.g., Robinson, Berman, & Neimeyer, 1990). This meta-analysis was criticised by Anderson et al. (2005) who argued that Cuijpers failed to describe the trials' sample characteristics and did not name the material researched in each study. Anderson et al. (2005) further added that in most trials participants were recruited through advertisements and thus the findings cannot be generalised to clinical populations. A further limitation was that the studies reviewed by Cuijpers compared bibliotherapy to no-treatment control groups thus making it difficult to exclude the possibility of a placebo effect; a possibility that was not acknowledged by Cuijpers. Reflecting on both Cuijpers's (1997) and Gould and Clum's (1993) findings an interesting issue emerges. Gould and Clum did not find differences on the level of participant improvement between studies that had no therapist input and studies that offered therapist support. Cuijpers did not address this question directly, but characterised the studies in his review as minimal-support interventions without clarifying the extent of that support (Cuijpers, Tiemens, & Willemse, 2000). A closer examination of this issue in future studies could shed light on the question of whether stand-alone[17] self-help might generate therapeutic improvement.

Two older studies that recruited older adults experiencing mild to moderate depression found that cognitive and behavioural bibliotherapy was effective in comparison to a delayed-treatment control condition (Scogin, Hamblin, & Beutler, 1987 [*N*=29]; Scogin, Jameson, & Cochneaur, 1989 [*N*=67]). Indeed, in Scogin et al. (1989) the therapeutic gain was maintained for a six-month and two-year follow up period (Scogin, Jamison, & Davis, 1990). In these studies the amount of therapist support was controlled and limited to weekly five-minute phone-calls suggesting that written self-help for depression could be effective with minimal therapist support. These findings need to be treated with caution as these studies are not representative of the general population as their participants were older adults that volunteered to participate through advertisements and may have been more motivated to attempt a self-help approach (McKendree-Smith, Floyd, & Scogin, 2003). Additionally, both

[17] A stand-alone intervention refers to a program administered without one-to-one support from a therapist or other health-care worker.

studies had a small sample size. However, a successful replication[18] of Scogin et al. (1989) with a larger sample (N=80) taken from the general adult population (Jamison & Scogin, 1995) reinforced the argument that written self-help was more effective than no treatment. In terms of critically evaluating this line of research the reader's attention should be drawn to the fact that in these investigations the treatment allocation procedure was not concealed and thus participants in the control condition were aware that they were not receiving the intervention. This design characteristic introduces an alternative explanation of these findings. According to Hardi and Craighead (1994) instilling hope in clients (such as knowledge that one will receive an intervention) may influence outcomes. In scope of this, mere knowledge that one is a member of the intervention group may result in differential improvement in comparison to a control condition.

A recent meta-analysis of bibliotherapy for depression was conducted by Anderson et al. (2005). These authors conducted an extensive literature search from 1983 to 2003 and included only randomised controlled trials with minimal therapist support[19]. Anderson et al.'s principal aim was to locate studies that evaluated written material that were available to the public. The investigation only included studies that met pre-defined methodological criteria to enhance the validity of the review. The analysis consisted of six studies including the Scogin et al. (1987, 1989) and Jamison and Scogin (1995). The authors concluded that bibliotherapy appeared to be effective compared to no treatment. However, Anderson et al. (2005) urged caution as the only written material that was consistently researched was *Feeling Good* (Burns, 1980) and argued that this does not suggest that all written self-help material is effective. In addition, Anderson et al. pointed out that all six investigations were conducted in the United States and may therefore not generalise to other countries.

A more extensive meta-analysis of (mainly)[20] bibliotherapy research was conducted by Den Boer et al. (2004). These investigators analysed 18 randomised controlled trials addressing the effectiveness of self-help material for emotional disorders (depression and anxiety disorders). All the studies were methodologically evaluated based on pre-defined criteria (Verhagen et al., 1998). The questions were whether self-help is more effective than no treatment and whether this material is of equal effectiveness to professional treatment. The

[18] With the difference that in Jamison and Scogin's study (1995) participants received approximately 10 minutes of telephone support each week.
[19] Minimal therapist support consisted of up to one hour of counselling throughout the study, or six fifteen-minute phone-calls in total.
[20] One study examined the effectiveness of a self-help group for depression.

authors found a large effect size (d=.84) for self-help in comparison to no-treatment control groups and no difference in effectiveness between self-help and therapist-administered treatments. The authors concluded that self-help appears to be an effective intervention for emotional disorders but were reluctant to conclude that self-help is as effective as professional treatment. They noted that the duration of the therapist-administered interventions in these studies was variable and short and may not be representative of conventional practice. An issue to consider in relation to Den Boer et al.'s meta-analysis is that the investigators did not specify the amount of therapist contact provided in the self-help conditions of the analysed trials. Given that self-help studies often involve some therapist contact (e.g., assessment, check-in phone-calls, evaluation) omitting this information amounts to a significant limitation as one cannot conclude under which circumstances self-help can be considered an effective intervention. In fact, in a three year follow-up of a written self-help study, 12% of the participants said that talking to the researcher was considered to be the most valuable element of their treatment (Smith, Floyd, Scogin, & Jamison, 1997). This finding illustrates the importance of disclosing the level of professional support in self-help interventions.

The majority of investigations reviewed thus far had similar research designs. That is, a CBT written self-help condition was compared to a waiting list that received no treatment. Furthermore, participants were mainly recruited through advertisements and the issue of concomitant pharmacotherapy was rarely addressed (Andreson et al., 2005; McKendree-Smith et al., 2003). However, findings from controlled research conditions may not replicate in primary care settings (Shadish et al., 1997). If written self-help is to be considered a possible treatment alternative in stepped-care models then pragmatic evaluations are essential (e.g., Scogin, 2003; Mains, & Scogin, 2003).

Correspondingly, Holdsworth et al. (1996) examined the effectiveness of a self-help manual (Managing Anxiety & Depression) for depression and anxiety in a randomised controlled trial in primary care. One hundred and six participants were randomised to either receive treatment as usual (TAU) or a stand-alone self-help manual. The authors found no improvement for the intervention group at one-month and three months follow-up (on all seven outcome measures); some improvement was noted for TAU on certain measures. Nevertheless, participants that received bibliotherapy reported satisfaction with the program. Holdsworth et al. neglected to discuss the following issues however. Recruitment for this

study was conducted by 40 General Practitioners (GP) who managed to refer only 106 participants to this project between them (approximately 2-3 participants each). Indeed, this narrow recruitment rate suggests that GP's may have been reluctant to allocate patients to self-help. Secondly, participants' reported satisfaction with self-help material might have been an attempt to fulfil 'the good participant role' since it is well documented that demand characteristics are a powerful confounding variable in psychology research (Orne, 1962).

Richards et al. (2003) conducted a randomised controlled trial of bibliotherapy for mixed anxiety and depression in primary care using the same manual as in Holdsworth et al. (1996). One hundred and thirty-nine participants were randomised to either treatment as usual (TAU) or to practice-nurse facilitated self-help. A nurse offered three support sessions and was available between meetings when needed. Richards et al. reported significant improvements on all measures (i.e., CORE-OM and Quality of Life) at one-month and three-month follow up for both the intervention and TAU. The two conditions appeared to be of equal effectiveness at three months although self-help was related with higher satisfaction levels and fewer referrals to other services. Richards et al. experienced high attrition rates in their study however (mean attrition for self-help = 63.96%, mean attrition for TAU = 46.87%). This might reflect the emergence of a highly selective sample by follow-up.

Salkovskis, Rimes, Stephenson, Sacks, and Scott (2006) recruited participants from 46 General Practices in the UK. Participants were randomised to receive standard TAU or TAU plus an individually-tailored self-help manual. Participants were assessed through standardised self-report measures (i.e., Beck Depression Inventory) and two professionally-led interviews. Salkovskis et al. (2006) reported reduction of depression on all measures for both groups with no differential improvement for TAU plus self-help. Similar results were reported by Mead et al. (2005) which examined the effectiveness of a guided[21] self-help programme in comparison to TAU. Interestingly, few primary care studies that found added improvement for TAU plus self-help reported modest effect sizes (e.g., Bower, Richards, & Lovell, 2001; Willemse, Smit, Cuijpers, & Tiemens, 2004) which fell short to those published in bibliotherapy meta-analyses (see above; e.g., E.S = .84 in Den Boer et al., 2004). Taken as a group these studies introduce questions about the benefits of bibliotherapy in clinical settings in comparison to treatment as usual.

3. Computer-Assisted Self-help

[21] Guided self-help in this study included four, 15-30 minute sessions with a paraprofessional.

Research interest in computer-assisted self-help has increased in the past decade. Jacobs et al. (2001) suggested that computerised treatments introduce features unachievable through written material. In detail, computer systems allow users to store or print information and have a user-friendly interface. Jacobs et al. (2001) added that these systems resemble a therapist more than standard self-help texts, because they interact with users and produce tailor-made responses. Computer-assisted treatments are potentially cost-effective (see McCrone et al., 2004) and may prove useful in reducing client-therapist interaction time and therapy waiting-lists (see Marks et al., 2004; Wright et al., 2005). The majority of these programs are based on Cognitive Behavioural Therapy (CBT) and are referred to as Computerised Cognitive Behaviour Therapy (CCBT).

Gega, Marks and Mataix-Cols (2004; also see Marks et al., 2003) conducted a pragmatic evaluation of three computer-aided self-help programmes for depression and anxiety; namely, *FearFigher* (FF) for anxiety disorders, *COPE* for depression and anxiety and *Balance* for depression and general anxiety. The intervention took place at a computer clinic coordinated by the researchers and run by two trained nurses who supported the participants. Participants received a CCBT program plus six brief therapist contacts (either by phone or face-to-face). The sample consisted of patients with moderate to severe depression. Of the participants that engaged with the programmes targeting depression (*COPE* and *Balance*) 80% rated themselves as having improved to some degree, 10% said that they were unchanged and 9% said that they had worsened. The findings need to be examined in view of the fact that this was an exploratory study and with regards to the amount of one-to-one support provided. Participants stated that the most satisfying element of the program was the support offered at the clinic. Gega et al. (2004) reported high participation refusals (20%) and notable dropout percentages (29%). This information, along with the fact that 95% of participants received professional treatment in the past, raises questions about the generalisability of the sample (Gega et al., 2004). The findings suggest that *Cope* and *Balance* may have therapeutic value when administered with professional support but their effectiveness as stand-alone interventions remained unclear. Indeed, Gega et al. (2004) suggested that computerised self-help may be a "clinician *extender*, not a clinician replacer" (italics in original; p.154).

Clarke et al. (2002) conducted a randomised controlled trial (RCT) to examine the effectiveness of a stand-alone[22] program for mild-to-moderate depression (Overcoming Depression on the Internet; ODIN) compared to treatment as usual (TAU). Participants (N=299) were recruited through advertisements sent to service-users suffering from depression (N=6994) and to non-depressed controls (N=6996). The effectiveness of the intervention was assessed by a single, self-report, depression questionnaire at 4-, 8-, 16-, and 32- weeks. Clarke et al. (2002) found no effect of ODIN at post (however, a small effect size [.17] was reported for a subgroup of individuals with lower depression scores at intake). The authors postulated that these results reflected bias in the recruitment procedure (the majority of participants had severe depression), infrequent utilisation of the program, and high attrition rates. Clarke at el. (2005) conducted a follow-up study to address these limitations. Adhering to the same recruitment procedure, 255 participants were randomly allocated to the intervention group (ODIN) or to TAU. In this study, participants were reminded to access the internet site (by postcards and telephone-calls). The effectiveness of the program was assessed at 5-, 10-, and 16- weeks through a self-report measure for depression, the short version SF-12, and by participants' utilisation of health care services at 12-month. Clarke et al. (2005) found reductions in depression scores for the intervention group (small effect size [.27] and medium effect size [.53] for a subgroup of severely depressed participants). No effect was found on other measures. It is useful to consider Clarke et al.'s (2002; 2005) studies. Arguably it is surprising that the researchers did not introduce an additional measure of depression in their second study given that this was identified as a limitation in the first trial (Clarke at al., 2002). Secondly, in the first trial, participants with mild depression seemed to benefit more from the program while in the second study the findings suggested the opposite. Alarmingly, this issue is not discussed by the authors although it raises questions about which patient group is most suitable for computer-assisted self-help. Both studies reported high attrition rates. In the second study, dropout participants were more likely to be from the intervention group, older or severely depressed (Clarke et al., 2005). Finally, participation in these studies was low (2.1%). It is not clear whether this number reflects reluctance with engaging with CCBT or with entering a research trial. Nevertheless, low participation and high attrition is in accord with the findings of Gega et al. (2004) thus reinforcing the possibility of these findings not being widely gerenalizable to the population.

[22] A stand-alone intervention refers to a program that is administered without one-to-one support from a therapist or other health worker.

Christensen, Griffiths, and Jorm (2004) conducted a RCT to evaluate the efficacy of two stand-alone, internet-delivered interventions for depression. Five-hundred and twenty-five participants were randomised to an online information page (BluePages; n=166), to a CCBT program (Moodgym; n=178) and to an attention-placebo control group (n=178). Both BluePages and Moodgym were found effective in reducing depression at post (at six weeks) with a small to moderate effect size (BluePages: d= *.33 and* Moodgym: d= *.35).* Moodgym was also found to be effective in improving participants' dysfunctional thinking (with a small effect size of d=.19). The dropout rates in this study were lower than studies reported earlier (BluePages=15.15%, Moodgym=25.27%, and Control group=10.67%). The CCBT group had a higher dropout percentage while participants who dropped-out were found to be more distressed prior to the intervention than participants who completed the trial. It is thus possible that participants who dropped out may have found the intervention less agreeable than they had originally expected. Moreover, this study found an information page to be as effective as a CCBT program. This finding is particularly alarming and raises questions with regards to the presumed added effectiveness of computerised self-help in comparison to bibliotherapy. Sadly, the authors did not expand on these two issues in their discussion section. Finally, albeit positive, Christensen et al.'s findings should be considered carefully as their design did not include follow-up measurements thus raising questions about effect maintenance.

Proudfoot et al. (2003) conducted a well-designed RCT (N=167) to examine the efficacy of a CCBT program for depression (*Beating the Blues*) compared to TAU in primary care. The authors reported that eight sessions of *Beating the Blues* (BtB) with limited support (10 minutes of interaction with a nurse on each session) significantly reduced depression and improved participants' work and social adjustment at two- and at six-month follow-up. The effectiveness of the intervention was not moderated by participants' depression severity as in other studies. In fact, Proudfoot and colleagues (2004) replicated these findings in a second study. In Proudfoot et al. (2004) participants (N=274) were primary care patients experiencing depression and/or anxiety disorder. One-to-one support consisted of a brief interaction with a nurse (five minutes at the beginning and at the end of the session). Measures consisted of six reliable, self-administered questionnaires (i.e., BDI; Work and Social Adjustment Scale [WSA] etc.). The aim was to address the effectiveness of BtB plus TAU (that is, pharmacotherapy, general, or social support but not counselling) in comparison to standard TAU (as above plus possibility of referral for counselling). The findings indicated

stronger reduction of depressive symptoms for the BtB plus TAU condition (on the BDI and WSA). Proudfoot et al.'s (2004) investigation was carefully designed and representative of a primary care population. Although this study had a notable dropout percentage (35%), the authors reported no significant differences between completers and non-completers. Proudfoot et al. suggested that this dropout rate is comparable to that of face-to-face interventions (25-50%; Garfield, 1994; Watkins & Williams, 1998). A limitation is that this report did not mention the percentage of individuals in TAU that were referred to a mental health practitioner during the study. In light of this, it is not clear exactly what BtB was compared to. Proudfoot et al.'s (2004) conclusions were reinforced by Cavanagh et al. (2006) however. These researchers conducted a pragmatic trial of BtB for patients with depression and/or anxiety in primary and secondary care settings. Again, a nurse was instructed to spend five-ten minutes with participants to provide assistance. Cavanagh et al.'s findings indicated significant reduction of depressive symptoms at post-treatment on all measures in comparison to baseline. Patient improvement was maintained for a six-month follow-up period. These studies (Proudfoot et al., 2003, 2004; Cavanagh et al., 2006) seem to suggest that *Beating the Blues* is an effective computer-assisted intervention that requires limited professional support.

A recent study by Learmonth and Rai (2008) aimed to evaluate the effectiveness of BtB in a naturalistic setting with a pre-post design. The authors noted that eight sessions of BtB with minimal supervision were effective in reducing depression and anxiety levels with medium to large effect sizes. This investigation further strengthens one's confidence in BtB (see above). Nevertheless, an interesting observation is that Learmoth and Rai had 31.7% participation withdrawal in this study, a percentage considered low by the study authors. A disquieting fact is that other authors consider this percentage high (e.g., Gega et al. argues that 29% is a high dropout percentage). Given the importance of dropout percentages in evaluating the generalisability of CCBT, it might be essential to resolve this ambiguity by presenting guidelines of what percentages indicate acceptable participant withdrawal in these studies.

Wright and colleagues (2005) conducted a RCT to examine the effectiveness of another CCBT program for depression. The program's effectiveness was compared to therapist-administered Cognitive Therapy (CT) and to a no-treatment, waiting list. The program consisted of eight sessions supplemented with therapist support (nine, 25-minute sessions) while the therapist-administered CT consisted of nine, 50-minute sessions. The participants were assessed by independent evaluators, blind to the trial's design. The findings indicated

significant reduction in depressive symptoms for the computer-assisted and the therapist-administered group in comparison to the waiting list. The reduction of depressive symptoms was maintained for a three- and six-month follow-up period. Wright et al. did not find differences in terms of depression severity at post-test between computer-assisted and therapist-administered interventions. However, the computer-assisted group experienced greater reduction of negative core beliefs and automatic thoughts than the therapist-administered CT. Wright et al.'s (2005) investigation had two advantages. Firstly, the study's assessments were conducted by blind evaluators, thus reinforcing the validity of measurements. Furthermore, the effect of concomitant pharmacotherapy was addressed by including medication-free participants. A limitation was that the study had a small sample size (N=45) and this may have been the reason the trial did not find statistically significant differences between the two treatment conditions. Despite this, Wright et al.'s findings have implications for practice. Since the amount of therapist contact in the CCBT group was considerable, these findings raise the possibility of using computerised self-help as an adjunct for one-to-one therapy.

In another RCT, Spek et al. (2007) compared CCBT (N=102) to a CBT group-therapy program (N=99) and to a waiting list (N=100). The study aimed to assess the relative effectiveness of stand-alone CCBT program to group CBT for people over 50-years-old with mild depression (non diagnosable on DSM-IV). Spek et al. reported that CCBT and group CBT were equally effective in reducing depression at post (as measured by the BDI) in comparison to a waiting list (effect sizes= 1.00 and .65 respectively). The study had a very high percentage of missing data (60.13%) with a high percentage of participants not completing the CCBT intervention (51.7% versus 1.7% for CBT group therapy). The high percentage of participants that withdrew from the CCBT intervention is alarming, especially when we consider the selective sample of this study (self-referrals, highly educated participants). In view of these limitations the findings of Spek et al. (2007) should be approached with caution.

Kaltenthaler and colleagues (2006; also see Kaltenthaler, Parry, & Beverley, 2004) conducted an extensive review of computerised cognitive-behaviour therapy for depression and anxiety disorders. The study's aim was to inform the National Institute for Health and Clinical Excellence (NICE) of the clinical and cost effectiveness of these interventions. Out of the ten

studies addressing the effectiveness of computer-assisted programmes for depression[23], six utilised available software packages (i.e., BtB [three studies], Overcoming depression [one study], and COPE [two studies]) while the remaining four used specially-made programmes. Out of the studies that included software packages only two were randomised controlled trials (RCTs). The authors reported that BtB was found to be more effective than TAU (in RCTs) while COPE and Overcoming Depression indicated improvement in comparison to baseline measurements. The authors concluded that there is enough evidence to suggest that *Beating the Blues* is an effective intervention for depression. However, Kaltenthaler and colleagues could not conclude the same for COPE and Overcoming depression due to methodological limitations in these studies. Kaltenthaler et al. claimed that there are unaddressed questions in relation to how computer-assisted self-help should be used in practice. Specifically, they noted that further research is needed in identifying the appropriate degree of therapist support for this material. In a more recent paper, Kaltenthaler, Parry, Beverly, and Ferriter (2008) concluded that another grey area is the degree of participant satisfaction with computer-assisted self-help while they emphasized that further research should be conducted by independent investigators (and not by the product developers as has been the case thus far).

4. Discussion

4.1. Conclusions on the effectiveness of Self-Help Material

This review examined self-help material for depression with the intention of concluding on their effectiveness. This is a difficult task given the plethora of studies in the literature. With regards to written CBT self-help for depression, the studies presented here introduce the possibility that bibliotherapy is more effective than no treatment but may not add significantly to treatment as usual. Therefore, recommending written self-help for depression as a first treatment option in primary care may not result in significant therapeutic gain. In contrast, computerised self-help appears to have more potential for significant therapeutic outcomes. A general observation is that the majority of computerised CBT trials have a thorough research design in comparison studies for bibliotherapy. This might be due to the commercial value of these tools and the potential for added cost-effectiveness when used in primary care (McCrone et al., 2004).

[23] Kaltenthaler's et al. (2004) review included the studies conducted by Proudfoot et al. (2003, 2004) and Wright et al. (2001) discussed above.

Having explored the effectiveness of this material, three questions remain unanswered: Exactly which material is effective and who might benefit from this material. In addition it is essential to consider how much support is needed for self-help to be implemented effectively and what is the role of a Counselling Psychologist in this framework. This section will also reflect on future research directions in this domain.

4.2. Which material is effective?

Despite presenting a plethora of studies that examined the effectiveness of computerised material for depression, there appears to be lack of strong evidence that this material is an effective therapeutic intervention when administered as a stand-alone treatment. Furthermore, there is poor evidence that this material results in clinically significant changes even when it is administered with the aid of a psychological or nurse practitioner. The only computerised program for depression that appears to be well-research and has demonstrated effectiveness and generalisability in primary care is Beating the Blues (BtB; e.g., Proudfoot et al., 2003; 2004; etc.). However, one's confidence in this program is also limited given that randomised controlled trials for this package were performed by the same research team who was involved in the program creation. Further independent research efforts are required to enhance one's confidence in the use of this material. Nevertheless, despite this limited evidence, BtB is now incorporated in the new Improving Access to Psychological Therapies service (DH, 2007) and is currently being offered to patients with mild to moderate depression.

Even though bibliotherapy's effectiveness has been addressed in many investigations there is little consideration as to which manuals are effective. In fact, the only book that has been consistently evaluated and has produced modest outcomes is *Feeling Good* (Burns, 1980). Most other studies had examined the effectiveness of trial-specific manuals that are not accessible to the public (Anderson et al., 2005). Rosen (1993) recommended that further research should be conducted on published self-help material since predominantly used by patients. Further research is needed on the effectiveness of widely-used manuals such as *'Mind over mood'* (Greenberger & Padesky, 1995). Practitioners can evaluate this material either as part of research trials or by presenting case studies in which self-help books were utilised. If psychologists are to recommend written material to patients, then an understanding of different manuals' effectiveness is important.

A consideration is in order: Most self-help material that has been thoroughly researched follows a Cognitive Behavioural Therapy (CBT) methodology and may not be welcomed by psychologists working with different theoretical approaches. In fact, a survey addressing therapists' attitudes towards self-help reported that cognitive-behavioural, eclectic, integrative, and humanistic therapists recommended self-help more often than psychodynamic practitioners (Norcross et al., 2000). Norcross (2006) suggested that there is a variety of self-help that does not necessarily follow CBT methodology. In this respect, more research is needed on the effectiveness of non approach-specific self-help tools, such as autobiographies and psycho-educational material (see Norcross et al., 2003).

4.3. Who benefits from self-help material?

Investigations on written self-help have revealed some information on who might be an appropriate candidate. Highly educated individuals and older participants were found to be more motivated to utilise written self-help (e.g., Codelief et al., 2004; McKendree-Smith et al., 2003; Scogin et al., 1987). Studies for computer-assisted self-help did not report similar participant characteristics however most studies failed to monitor the reasons given by dropout participants (Kallenthaler et al., 2008). An advantage of computerised self-help is that research findings have been generalised to primary care (e.g., Proudfoot et al., 2004) where most patients with depression are encountered (Young et al., 2001). However, caution is needed whilst interpreting this result, as most studies included participants with specific mild to moderate depressive disorder or co-morbid anxiety. Thus given that depression is a highly co-morbid disorder (e.g., McCrady, 2001; Katon, 2003) it is difficult to generalise these findings to the general patient population or to clients experiencing severe depression. Accordingly, Kaltenthaler et al. (2006) argued in favour of including patients with co-morbidities in future studies.

A significant question is whether participants that volunteer in self-help studies have differential characteristics to those that refuse participation (Salkovskis et al., 2006). This is a difficult question, as the population characteristics of individuals refusing participation cannot be examined in research. Nevertheless, this information is important to recommend this material to suitable candidates. NICE guidelines for depression (2007) broadly recommend prescribing computer-assisted self-help to patients with mild to moderate depression. Respectively, Stutzke, Aitken and Stout (1997) found computer-assisted therapy

to be ineffective for severely depressed inpatients. Some authors suggest that patients' motivation, mnemonic capacity, and concentration levels should be assessed before recommending self-help (Floyd, 2003; Salkovskis et al., 2006). In fact, Mataix-Cols et al. (2006) found that self-referred individuals were more likely to benefit from CCBT. Self-help can be a useful alternative when face-to-face therapy is not available (e.g., individuals living in remote locations) or in cases where face-to-face therapy is avoided (e.g. fear of stigmatisation, feeling ashamed; Ellis, 1993). Finally, some authors focus on identifying particular patient variables indicating individuals' suitability for different types of interventions (Beutler, 1991; Norcross, 1993; Prochaska & Norcross, 1999. Unfortunately, investigations in this area are limited and further research is needed to produce guidelines for practice.

4.4. How much support is needed for this material to be implemented effectively, and what is the role of a Counselling Psychologist in this framework?

Most studies investigating the effectiveness of self-help, written or computer-assisted, offered some support although its extent was variable across studies. Indeed, therapist support varied from one hour throughout the study (Anderson et al., 2005) to 30 minutes after each session (Wright et al., 2005). Interestingly, the few studies that examined the effectiveness of self-help with no added support either resulted in no significant effect or produced small effect sizes (e.g., Clarke, 2002; 2005; Christensen et al., 2004). If we take a broad view, we can observe that some therapist guidance is necessary to enhance the efficacy of self-help. However, research projects have yet to clarify how much support is needed for self-help to be a viable therapeutic option. For instance, Newman et al. (2003) pointed out that self-help for anxiety disorders is more effective when therapist support is increased than when the intervention is strictly self-help. Equally, in a meta-synthesis of qualitative studies of patient experience, Khan, Bower, and Rogers (2007) identified "a tension between the positive impact of the therapist and the negative effect on patient understanding of the therapist's role within self-hep" (p. 207). This observation suggests that added guidance and research may be required in order to explain the delicate role of a mental health worker that supports a client that uses self-help material. This is especially important in view of the development of the role of a 'psychological wellbeing practitioner' in the IAPT scheme whose role involves supporting the implementation of guided self-help (DH, 2008). Alarmingly, Khan et al. (2007) also revealed that the development of a therapeutic alliance in guided self help did not seem to result in participants becoming more likely to use the self-help material.

This literature gap is of particular importance. The concern is that clients will receive self-help interventions without the essential guidance or that minimal one-to-one support might be transformed into hurried psychotherapy. This scenario is possible for both written (prescription of a manual) and computer-assisted self-help (access through the internet). In fact, NICE's guidelines for depression (2007) recommend *guided* self-help as a second step for treating depression but do not clarify the extent of that support[24]. Jacobs et al. (2001) suggested that patients referred to computer-assisted self-help need to be closely supervised because individuals engaging with these tools may have increased expectations. Ellis (1993) introduced a similar consideration for written self-help, suggesting that patients may experience disappointment and self-blame if they do not experience improvement.

It is recommended that counselling psychologists safeguard patients' interests by supervising the implementation of self-help programmes. This task might include examining whether patients are motivated to use this material, helping patients identify therapeutic goals, overseeing the process at regular intervals and supervising paraprofessionals offering patient support. Most importantly, it is suggested that psychologists complete a full psychological assessment before prescribing self-help. In fact, NICE guidelines (2007) have not emphasized the importance of referring clients to mental health professionals for an assessment. Here it is argued that this is important for ethical reasons (i.e., patients with severe depression or with suicidal ideation should be identified and offered more appropriate interventions such as referral to crisis teams or implementation of combined treatments; NICE, 2007). Nevertheless, it seems that under suitable professional supervision this material can be useful for reducing therapy waiting lists and broaden access to psychotherapy interventions.

An additional issue is the potential for using self-help as an adjunct in therapy. Given that prescribing homework to clients seems to promote greater improvement (e.g., Detweiler & Whisman, 1999; Leung & Heimberg, 1996), it is possible that more integral material such as self-help may have an enhanced effect. Floyd (2003) suggested that using self-help material

[24] The guidance for Beating the Blues, a program already implemented in primary care, states that patients' progress with self-help should be reported "to the GP or other professional at the end of each session" (p. 10). The guidance does not clarify the form or length of this progress check. The guidance goes on to emphasize that "minimal therapist appointment time is necessary for the types of CCBT that can be conducted at home" (p. 11) but does not specify what minimal appointment time consists of.

as an adjunct in therapy can accelerate the learning process and save time by allowing patients to understand the basic concepts of cognitive behaviour therapy autonomously. Floyd (2003) argued that delegating practical parts of therapy (such as skills development) to self-help interventions saves time that can be dedicated to patients' deep interpersonal difficulties. In conclusion, given that depression is a highly recurrent disorder (Young, Weinberger, & Beck, 2001), recommending a self-help tool after the conclusion of therapy may prove useful in preventing a relapse (Ellis, 1993). Further research is needed to examine whether prescribing self-help material in addition to therapy for depression can result in higher effect sizes in efficacy trials and whether these tools can be used as a means of reducing the number of necessary therapy sessions.

4.5. Future Research.

This review has identified several gaps in the literature. An interesting question is whether computer-assisted self-help programmes are indeed more effective than written self-help or whether the added efficacy found in trials for CCBT reflects more research funding and better research designs. Given that not all patients are computer-literate examining whether the bibliotherapy is of equal effectiveness may be essential. In particular, both written and computer-assisted self-help could be evaluated in primary care in comparison to a standard waiting list.

5. Conclusions

This literature review sought to explore the effectiveness of CBT-based written and computer-assisted self-help material for depression. Whilst introducing this review the author questioned the necessity of therapeutic support for the administration of self-help and aimed to discuss which material has proven its effectiveness and for whom it may be appropriate.

Reflecting on the research evidence considered in this review, one can conclude that the potential benefits of recommending CBT-based self-help material to mildly and moderately depressed patients is limited. It is essential that the CBT community collects stronger research evidence before confidently referring patients with mild and moderate depression to independently make use of this material. Indeed, care is needed when attempting to use this

material in primary care or when integrating it into common practice as there are still unanswered questions. Given that many services are already recommending these interventions, it is suggested that professionals prescribing these programmes are suitably trained and supervised. Indeed, the counselling psychologists' role might be one of collaboration with other professionals to establish guidelines for self-help material's use.

Furthermore, it is essential to shed more light on how much professional support is necessary for the application of this material. This concern is highlighted in view of research findings that position the therapeutic alliance as a significant predictor of therapeutic outcome (Horvath & Symonds, 1991; Martin, Garske, & Davis, 2000), whilst other authors stressed that a therapist's empathic response is necessary to encourage clients to identify and change deeper beliefs in a CBT context (Sanders & Wills, 2005). Given that most investigations reviewed here provided some one-to-one support, it is hypothesized that adding professional input to a self-help intervention might be of particular importance for the majority of patients. This argument is supported by Krupnick et al.'s (1996) finding that the therapeutic alliance accounted for 21% of the therapeutic outcome for depressed patients even when the intervention was pharmacotherapy. In view of this it is possible that even minimal support in self-help interventions may be invaluable.

References

Adamsen, L. (2002). 'From victim to agent': the clinical and social significance of self-help group participation for people with life-threatening diseases. *Scandinavian Journal of Caring Sciences, 16*(3), 224-231.

Anderson, L., Lewis, G., Araya, R., Elgie, R., Harrison, G., Proudfoot, J., et al. (2005). Self-help books for depression: how can practitioners and patients make the right choice? *British Journal of General Practice, 55*, 387-392.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). Cited in Salkovskis, P., Rimes, K., Stephenson, D., Sacks, G., & Scott, J. (2006). A randomised controlled trial of the use of self-help materials in addition to standard general practice treatment of depression compared to standard treatment alone. *Psychological Medicine, 36*, 325-333.

Berto, P., D'Ilario, D., Ruffo, P., Virgilio, R. D., & Rizzo, F. (2000). Depression: cost-of-illness studies in the international literature, a review. *The Journal of Mental Health Policy and Economics, 3*(1), 3-10.

Beutler, L. E. (1991). Predictors of differential response to cognitive, experiential, and self-directed psychotherapeutic procedures. *Journal of Consulting and Clinical Psychology, 59*, 333-340.

Bor, R., Gill, S., Miller, R., & Parrott, C. (2004). *Doing Therapy Briefly.* London: Palgrave.

Bower, P., Richards, D., & Lovell, K. (2001). The clinical and cost-effectiveness of self-help treatments for anxiety and depressive disorders in primary care: a systematic review. *British Journal of General Practice, 51*, 838-845.

Cambell, L. F., & Smith, T. P. (2003). Integrating self-help books into psychotherapy. *Journal of Clinical Psychology, 59*, 177-186.

Carlsen, B. (2003). Professional support of self-help groups: a support group project for chronic fatigue syndrome patients. *British Journal of Guidance & Counselling, 31*(3), 289-304.

Cavanagh, K., Shapiro, D. A., Van Den Berg, S., Swain, S., Barkham, M., & Proudfoot, J. (2006). The effectiveness of computerized cognitive behavioural therapy in routine care. *British Journal of Clinical Psychology, 45*, 499-514.

Chang, T. (2005). Online Counselling: prioritizing psychoeducation, self-help and mutual help for counselling psychology. *Professional Psychology: Research and Practice, 33*(6), 881-890.

Christensen, H., Griffiths, K. M., & Jorm, A. F. (2004). Delivering interventions for depression by using the internet: randomised controlled trial. *British Medical Journal, 328*, 265-268. Retrieved on 26 June, 2007, from http://www.bmj.com/cgi/reprint_abr/328/7434/265.

Cheung, S. K., & Sun, S. Y. K. (2001). Helping processes in a mutual aid organization for persons with emotional disturbance. *International Journal of Group Psychotherapy, 51*(3), 295-308.

Clarke, G., Reid, E., Eubanks, D., O'Connor, E., DeBar, L. L., Kelleher, C., et al. (2002). Overcoming depression on the internet (ODIN): A randomized controlled trial of an internet depression skills intervention program. *Journal of Medical Internet Research, 4(3),* e14.

Clarke, G., Eubanks, D., Reid, E., Kelleher, C., O'Connor, E., DeBar, L. L., et al. (2005). Overcoming depression on the internet (ODIN) (2): A randomized controlled trial of a self-help depression skills program with reminders. *Journal of Medical Internet Research, 7(2),* e16.

Codelief, R. W. M., Willemse, G., Smit, F., Cuijpers, P., & Tiemens B. G. (2004). Minimal-contact psychotherapy for sub-threshold depression in primary care. *British Journal of Psychiatry, 185,* 416-421.

Cuijpers, P. (1997). Bibliotherapy in unipolar depression: a meta-analysis. *Journal of Behavioural Therapy and Experimental Psychiatry, 28,* 139-147.

Cuijpers, P., Tiemens, B., & Willemse, G. (2000). Minimal contact psychotherapy for depression. (Protocol). *The Cochrane Database of Systematic Reviews, 3,* Art. No.: CD003011.DOI: 10.1002/14651858.CD003011. Retrieved on June, 26, 2007, from http://wdh.state.wy.us/Media.aspx?mediaId=1015.

Den Boer, P. C. A., Wiersma, D., & Van Den Bosch, R. J. (2004). Why is self-help neglected in the treatment of emotional disorders? A meta-analysis. *Psychological Medicine, 34,* 959-971.

Department of Health. (1999). *National service framework for mental health: modern standards and service models.* Retrieved on June 26, 2007, from http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4009598.

Department of Health. (2008*). Commissioning IAPT for the whole community: Improving Access to Psychological Therapies.* (Reference: 10547). Retrieved on September, 2, 2009 from http://www.dh.gov.uk/prod_consum_dh/groups/ dh_digitalassets/@dh/@en/ documents/digital asset/dh_090054.pdf.

Detweiler, J. B., & Whisman, M. A. (1999). The role of homework assignments in cognitive therapy for depression: potential methods for enhancing adherence. *Clinical Psychology: Science and Practice, 6*(3), 267-282.

Ellis, A., (1993). The advantages and disandvantages of self-help therapy materials. *Professional psychology: Research and Practice, 24(3),* 335-339.

Floyd, M. (2003). Bibliotherapy as an adjunct to psychotherapy for depression in older adults. *Journal of Clinical Psychology, 59(2),* 187-195.

Garfield, S. L. (1994). Cited in Cavanagh, K., Shapiro, D. A., Van Den Berg, S., Swain, S., Barkham, M., & Proudfoot, J. (2006). The effectiveness of computerized cognitive behavioural therapy in routine care. *British Journal of Clinical Psychology, 45,* 499-514.

Gega, L., Marks, I. M., & Mataix-Cols, D. (2004). Computer-aided CBT self-help fro anxiety and depressive disorders: Experience of a London clinic and future directions. *Journal of Clinical Psychology/In session, 60*(2), 147-157.

Gould, R. A., & Clum, G. A. (1993). A meta-analysis of self-help treatment approaches. *Clinical Psychology Review, 13,* 169-186.

Greenberger, D., & Padesky, C. A. (1995). *Mind over mood.* New York/London: Guilford press.

Hardi, S., & Craighead, W. (1994). The role of non-specific factors in cognitive-behaviour therapy for depression. *Clinical Psychology: Science and Practice, 1,* 138-156.

Holdsworth, N., Paxton, R., Seidel, S., Thompson, D., & Shrubb, S. (1996). Cited in McKendree-Smith, N. L., Floyd, M., & Scogin, F. R. (2003). Self-administered treatments for depression: a review. *Journal of Clinical Psychology, 59*, 275-288.

Horvath, A. O., & Symonds, B. D. (1991). Relation between working alliance and outcome in psychotherapy: a meta-analysis. *Journal of Counseling Psychology, 38*, 139-149.

Jacobs, M. K., & Goodman, G. (1989). Psychology and self-help groups: Predictions on a partnership. *American Psychologist, 44*, 536-544.

Jacobs, M. K., Christensen, A., Snibbe, J. R., Dolezal-Wood, S., Huber, A., & Potterok, A. (2001). A comparison of computer-based versus traditional individual psychotherapy. *Professional Psychology: Research and Practice, 32*(1), 92-96.

Jamison, C. S., & Scogin, F. (1995). Outcome of cognitive bibliotherapy with depressed adults. *Journal of Consulting and Clinical Psychology, 63*, 644-650.

Kaltenthaler, E., Brazier, J., De Nigris, E., Tumor, I., & Ferriter, M. (2006). Computerised cognitive behaviour therapy for depression and anxiety update: a systematic review and economic evaluation. *Health Technology Assessment, 10,* 133. Retrieved June, 26, 2007, from http://www.hta.ac.uk/pdfexecs summ1033.pdf.

Kaltenthaler, E., Parry, G., & Beverley, C. (2004). Computerised cognitive behaviour therapy: a systematic review. *Behavioural and Cognitive Psychotherapy, 32*, 31-55.

Kaltenthaler, E., Parry, G., & Beverley, C., Ferriter, M. (2008). Computerised cognitive-behavioural therapy for depression: systematic review. *The British Journal of Psychiatry, 193*, 181-184.

Kaltenthaler, E., Sutcliffe, P., Parry, G., Beverley, C., Rees, A., & Ferriter, M. (2008). The acceptability to patients of computerized cognitive behaviour therapy for depression: a systematic review. *Psychological Medicine, 38,* 1521-1530.

Katon, W. (2003). Clinical and health services relationships between major depression, depressive symptoms, and general medical illness. *Biological Psychiatry, 54*, 216-226.

Keeley, H., Williams, C., Shapiro, D. A. (2002). A United Kingdom survey of accredited cognitive behaviour therapists' attitudes towards and use of structure self-help materials. *Behavioural and Cognitive Psychotherapy, 30*, 193-203.

Khan, N., Bower, P., & Rogers, A. (2007). Guided self-help in primary care mental health: meta-synthesis of qualitative studies of patient experience. *British Journal of Psychiatry, 191,* 206-211.

Krupnick, J. L., Sotsky, S. M., Simmens, S., Moyer, J., Elkin, I., Watkins, J. et al. (1996). The role of therapeutic alliance in psychotherapy and pharmacotherapy outcome: findings in the national institute of mental health treatment of depression collaborative research programme. *Journal of Consulting and Clinical Psychology, 64*, 532-539.

Kurtzweil, P., Scogin, F., & Rosen, G. M. (1996). A test of the Fail-Safe N for self-administered treatments. *Professional Psychology: Research and Practice, 27*, 629-630.

Lampropoulos, G. K., Kazantzis, N. & Deane, F. P. (2004). Psychologist's use of motion pictures in clinical practice. *Professional Psychology: Research and Practice, 27*(6), 629-630.

Learmonth, D., & Rai, S. (2008). Taking computerised CBT beyond primary care. *British Journal of Clinical Psychology, 47,* 111-118.

Leung, A. W., & Heimberg, R. G. (1996). Homework compliance, perceptions of control, and outcome of cognitive-behavioral treatment of social phobia. *Behaviour Research and Therapy, 34*(5), 423-432.

Lewis, G., Anderson, L., Araya, R., Elgie, R., Harrison, G., Proudfoot, J. et al. (2003). *Self-help interventions for mental health problems.* Report to the Department of Health R&D Programme. London: Department of Health.

Mains, J. A., & Scogin, F. R. (2003). The effectiveness of self-administered treatments: a practice-friendly review of the research. *Journal of Clinical Psychology, 59*, 237-246.

Marks, I. M., Mataix-Cols, D., Kenwright, M., Cameron, R., Hirsch, S., & Gega, L. (2003). Pragmatic evaluation of computer-aided self-help for anxiety and depression. *British Journal of Psychiatry, 183*, 57-65.

Marks, I. M., Kenwright, M., McDonough, M., Whittaker, M., & Mataix-Cols, D., (2004). Saving clinicians time by delegating routine aspects of therapy to a computer: a randomised controlled trial in phobia/panic disorder. *Psychological Medicine, 34*, 9-18.

Martin, D. J., Garske, J. P., & Davis, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 68*, 438-450.

McCrady, B. S. (2001). Alcohol use disorders. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders* (pp. 376-433). New York, London: Guilford Press.

McCrone, P., Knapp, M., Proudfoot, J., Ryden., C., Cavanagh, K., Shapiro, D. A., et al. (2004). Cost-effectiveness of computer cognitive-behavioural therapy for anxiety and depression in primary care: randomised controlled trial. *British Journal of Psychiatry, 185*, 55-62.

McKendree-Smith, N. L., Floyd, M., & Scogin, F. R. (2003). Self-administered treatments for depression: a review. *Journal of Clinical Psychology, 59*, 275-288.

Mead, N., MacDonald, W., Bower, P., Lovell, K., Richards, D., Roberts, C., et al. (2005). The clinical effectiveness of guided self-help versus waiting-list control in the management of anxiety and depression: a randomised controlled trial. *Psychological Medicine, 35*, 1633-1643.

Miller, G. A. (1969). Cited in Rosen, G. M. (1993). Self-Help or Hype? Comments on psychology's failure to advance self-care. *Professional Psychology: Research and Practice, 24*(3), 340-345.

National Institute for Health and Clinical Excellence. (2006). *Computerised cognitive behaviour therapy for depression and anxiety* (Technology appraisal 97). Retrieved on June, 26, 2007, from http://www.nice.org.uk/TAO97.

National Institute for Health and Clinical Excellence (2007). *Depression: management of depression in primary and secondary care.* Retrieved on June, 27, 2007, from http://www.nice.org.uk /CG023NICEguideline.

Newman, M. G. (2000). Recommendations for a cost offset model of psychotherapy allocation using generalised anxiety disorder as an example. *Journal of Consulting and Clinical Psychology, 68*, 549-555.

Newman, M. G., Erickson, T., Przeworski, A., & Dzus, E. (2003). Self-help and minimal contact therapies for anxiety disorders: is human contact necessary for therapeutic efficacy? *Journal of Clinical Psychology, 59*, 251-274.

Norcross, J. C. (1993). Tailoring relationship stances to client needs: An introduction. *Psychotherapy. 30*, 402-423.

Norcross, J. C. (2006). Integrating self-help into psychotherapy: 16 practical suggestions. *Professional Psychology: Research and Practice, 37*(6), 683-693.

Norcross, J. C., Hedges, M., & Prochaska, J. O. (2002). The face of 2010: A Delphi poll on the future of psychotherapy. *Professional Psychology: Research and Practice, 33*, 316-322.

Norcross, J. C., Santrock, J. W., Campbell, L. F., Smith, T. S., Sommer, R., & Zuckerman, E. L. (2000). *Authoritative guide to self-help resources in mental health* (2nd e.). New York: Guilford.

Norcross, J. C., Santrock, J. W., Campbell, L. F., Smith, T. S., Sommer, R., & Zuckerman, E. L. (2003). *Authoritative guide to self-help resources in mental health* (2nd e.). New York: Guilford.

O'Conner, E. P., & Kratochwill, T. R. (1999). Self-help interventions: The reported practices of school psychologists. *Professional Psychology: Research and Practice, 30*, 147-153.

Orbach, G., Lindsay, S., & Grey, S. (2007). A randomised placebo-controlled trial of a self-help internet based intervention for test anxiety. *Behaviour Research and Therapy, 45*, 483-496.

Orne, M. T. (1962). On the social psychology of the psychological experiment: with particular reference to demand characteristics and their implications. *American Psychologist, 17,* 776-83.

Osgood-Hynes, D. J., Greist, J. H., Marks, I. M., Baer, L., Henemen, S. W., Wenzel, K. W., et al. (1998). Self-administered psychotherapy for depression using a telephone-accessed computer system plus booklets: an open U.S.-U.K. Study. *Journal of Clinical Psychiatry, 59*, 358-365.

Payne, A., & Blanchard, E. B. (1995). A controlled comparison of cognitive therapy and self-help support groups in the treatment of irritable bowel syndrome. *Journal of Counseling and Clinical Psychology, 63*(5), 779-786.

Prochaska, J. O., & Norcross, J. C. (1999). *Systems of psychotherapy.* Pacific Grove, CA: Brooks/Cole.

Proudfoot, J., Goldberg, D., Mann, A., Everitt, B., Marks, I., & Gray, J. (2003). Computerized, interactive, multimedia cognitive behavioural therapy reduces anxiety and depression in general practice: A randomised controlled trial. *Psychological Medicine, 33*, 217-227.

Proudfoot, J., Ryden, C., Everitt, B., Shapiro, D. A., Goldberg, D., Mann, A., et al. (2004). Clinical efficacy of computerised cognitive-behavioural therapy for anxiety and depression in primary care: randomised controlled trial. *British Journal of Psychiatry, 185*, 46-54.

Richards, A., Barkham, M., Cahill, J., Richareds, D., Williams, C., & Heywood, P. (2003a). PHASE: a randomised controlled trial of supervised self-help cognitive behavioural therapy in primary care. *British Journal of General Practice, 53*, 764-770

Robinson, L. A., Berman, J. S., & Neimeyer, R. A. (1990). Cited in Cuijpers, P. (1997). Bibliotherapy in unipolar depression: a meta-analysis. *Journal of Behavioural Therapy and Experimental Psychiatry, 28*, 139-147.

Robinson, P., Katon, W., Von Korff, M., Bush, T., Simon, G., Lin, E., et al. (1997). The education of depressed primary care patients: what do patients think of interactive booklets and a video? *Journal of Family Practice, 44*, 562-571.

Rodolfa, E. R., & Hungerford, L. (1982). Self-help groups: A referral source for professional therapists. *Professional Psychology: Research and Practice, 13*(3), 345-353.

Rosen, G. M. (1993). Self-Help or Hype? Comments on psychology's failure to advance self-care. *Professional Psychology: Research and Practice, 24*(3), 340-345.

Safran, J. D., & Muran, J. C. (Eds.) (1995). The therapeutic alliance (Special issue). *In Session: Psychotherapy in Practice, 1*(1).

Salkovskis, P., Rimes, K., Stephenson, D., Sacks, G., & Scott, J. (2006). A randomised controlled trial of the use of self-help materials in addition to standard general practice treatment of depression compared to standard treatment alone. *Psychological Medicine, 36*, 325-333.

Sanders, D., & Wills, F. (2005). *Cognitive therapy. An introduction.* (2nd ed.) London: Sage Publications.

Shadish, W. R., Matt, G. E., Navarro, A. M., Siegle, G., Crits-Christoph, P., Hazelrigg, M., et al. (1997). The effects of psychotherapy conducted under clinically representative conditions. *Journal of Consulting and Clinical Psychology, 65*, 355-365.

Scogin, F. R. (2003). Introduction: The status of self-administered treatments. *Journal of Clinical Psychology, 59(3)*, 247-249.

Scogin, F. R., Hamblin, D., & Beutler, L. (1987). Bibliotherapy for depressed older adults: A self-help alternative. *The Gerontologist, 27*, 383-387.

Scogin, F., Jamison, C., & Gochneaur, K. (1989). Comparative efficacy of cognitive and behavioural bibliotherapy for mildly and moderately depressed older adults. *Journal of Consulting and Clinical Psychology, 57*, 403-407.

Scogin, F., Jamison, C., & Davis, N. (1990). Two-year follow-up of bibliotherapy for depression in older adults. *Journal of Consulting and Clinical Psychology, 58*, 665-667.

Scogin, F., Bynum, J., Stephens, G., & Calhoon, S. (1990). Efficacy of self-administered treatment programs: meta-analytic review. *Professional Psychology: Research and Practice, 21*(1), 42-47.

Shapiro, D., & Shapiro, D. (1983). Cited in Gould, R. A., & Clum, G. A. (1993). A meta-analysis of self-help treatment approaches. *Clinical Psychology Review, 13*, 169-186.

Smith, N. M., Floyd, M. R., Scogin, F., & Jamison, C. S. (1997). Three-year follow-up of bibliotherapy for depression. *Journal of Consulting and Clinical Psychology, 65*, 324-327.

Sobell, M. B., & Sobell, L. C. (2000). Stepped care as a heuristic approach to the treatment of alcohol problems, *Journal of Consulting and Clinical Psychology, 68*, 573-579.

Spek, V., Nyklicek, I., Smits, N., Cuijpers, P., Riper, H., & Keyzer, J. (2007). Internet-based cognitive behavioural therapy for subthreshold depression in people over 50 years old: a randomized controlled clinical trial. *Psychological Medicine, 37,* 1797-1806.

Stanley, J. D. (1999). *Reading to heal: how to use bibliotherapy to improve your life.* Boston: Mass.

Stutzke, T., Aitken, L., & Stout, C. (1997). Cited in McKendree-Smith, N. L., Floyd, M., & Scogin, F. R. (2003). Self-administered treatments for depression: a review. *Journal of Clinical Psychology, 59,* 275-288.

Üstün, T. B. (1999). The global burden of mental disorders. *American Journal of Public Health, 89,* 1315-1318.

Verhagen, A. P., De Vet, H. C., W., De Brie, R. A., Kessels, A. G. H., Boers, M., Bouter, L. M. et al. (1998). Cited in Den Boer, P. C. A., Wiersma, D., & Van Den Bosch, R. J. (2004). Why is self-help neglected in the treatment of emotional disorders? A meta-analysis. *Psychological Medicine, 34,* 959-971.

Watkins, E. & Williams, R. (1998). Cited in Proudfoot, J., Ryden, C., Everitt, B., Shapiro, D. A., Goldberg, D., Mann, A., et al. (2004). Clinical efficacy of computerised cognitive-behavioural therapy for anxiety and depression in primary care: randomised controlled trial. *British Journal of Psychiatry, 185,* 46-54.

Wedding, D., & Niemiec, R. M. (2003). The clinical use of films in psychotherapy. *Psychotherapy in Practice, 59*(2), 207-215.

Willemse, G., Smit, F., Cuijpers, P., & Tiemens, B. (2004). Minimal contact psychotherapy for sub-threshold depression in primary care: randomised trial. *British Journal of Psychiatry, 185,* 416-421.

Williams, C. (2001). Use of written cognitive-behavioural therapy self-help materials to treat depression. *Advances in Psychiatric Treatment, 7,* 233-240. Retrieved June 26, 2007, from http://apt.rcpsych.org/cgi/reprint/7/3/233.

Wilson, G. T., Vitousek, K. M., & Loeb, K. L. (2000). Stepped care treatments for eating disorders. *Journal of Consulting and Clinical Psychology, 68,* 564-572.

Wright, J. H., Wright, A. S., Albano, A. M., Basco, M. R., Goldsmith, L. J., Raffield, T., et al. (2005). Computer-assisted cognitive therapy for depression: maintaining efficacy while reducing therapist time. *American Journal of Psychiatry, 162,* 1158-1164.

Young, J. E., Weinberger, A. D., & Beck, A. T. (2001). Cognitive therapy for depression. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders* (pp. 264-308). New York, London: Guilford Press.

Zuckerman, E. (2003). Finding, evaluating and incorporating internet self-help resources into psychotherapy practice. *Psychotherapy in Practice, 59*(2), 217-225.