

**Psychological Flexibility and Readiness for Organisational Change: An Acceptance and
Commitment Therapy Pilot Intervention**



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Psychological flexibility and Readiness for Organisational Change: A literature review

Abstract

In the last 20 years, Acceptance and Commitment Therapy (ACT) has become a widely researched form of behavior therapy used to effectively treat a multitude of psychological diagnoses. ACT promotes behavior change through the development of psychological flexibility, a construct defined by six core psychological processes: cognitive defusion, acceptance, contact with the present moment, self as context, values, and committed action. There is a robust body of literature providing evidence for ACT's efficacy to affect positive behavior change. Given ACT's effectiveness in promoting desired behavior modification and subsequent symptom workability across a range of clinical diagnoses, it is a logical progression that the principles of ACT are now being applied within organisational settings. Increased psychological flexibility has been associated with improved individual employee and organisational outcomes, and specific interventions designed to increase psychological flexibility have been utilised to improve leadership, employee stress and work performance. Despite this extension of ACT's application into some organisational contexts, there are still some areas which are currently understudied. One particularly area of organisational performance where ACT is yet to be applied is change management. Readiness for change has been identified as a key factor in whether or not an intended organisational change reaches its desired outcomes. There are some theoretical links between mindfulness and readiness for organisational change, however specific studies investigating the relationship are minimal. Research examining the relationship between psychological flexibility and readiness for organisational change is warranted. Further, understanding whether ACT based interventions can increase readiness for organisational change would be valuable for businesses looking to prepare their employees for future workplace changes.

Background

Over the past 20 years, Acceptance and Commitment Therapy (ACT) has been an extensively researched form of behaviour therapy which has promoted psychological improvements within clinical populations. Subsequently, ACT based interventions have also been used within organisational contexts to influence individual employee and organisational outcomes (Archer, 2018; Lobo, 2018; Reeve et al.; in press). This report will review how ACT creates behaviour change through the mechanism of psychological flexibility. Further aims are to i) review research examining ACT and psychological wellbeing within organisational contexts ii) examine the literature linking mindfulness, a component of ACT, and readiness for organisational change. Potential avenues for further research will also be briefly explored.

Acceptance and Commitment Therapy (ACT).

Acceptance and Commitment Therapy (ACT) has emerged over the last 30 years as a ‘third wave’ form of Cognitive Behaviour Therapy (CBT). Originally developed by Hayes & Wilson (1994) and based on the core concepts of mindful awareness, acceptance, and values driven action, ACT aims to support mental wellbeing and behavioural function through mindful acceptance of unpleasant cognitions, emotions and physiological states (Hayes, 2004a). Unlike traditional CBT which seeks to challenge or change undesirable cognitions, feelings and bodily sensations, ACT encompasses mindfulness approaches which promote changing the way one *relates* to these internal states. (Flaxman, Bond & Livheim, 2013). Furthermore, ACT focusses on behavioural activation through aligning one’s actions to their chosen values; this is achieved via recognising an internal state through mindful awareness and acceptance followed by choosing behaviours which are aligned to personally decided values (Hayes, 2004a).

Essentially, ACT is a form of behaviour therapy which is based on two theoretical approaches: behaviourism, and functional contextualism. Behaviourism is grounded upon the view that all animal (including human) behaviour is a product of antecedents and consequences, and reinforcements and punishments (Torneke, 2010). Functional contextualism refers to "the development of an organized system of empirically-based verbal concepts and rules that allow behavioural phenomena to be predicted and influenced with precision, scope, and depth" (Biglan & Hayes, 1996, pp. 50-51). Both of these theoretical approaches can be linked back to a broader theory of human language and cognition known as Relational Frame Theory (RFT) developed by Hayes (1988).

ACT and Relational Frame Theory

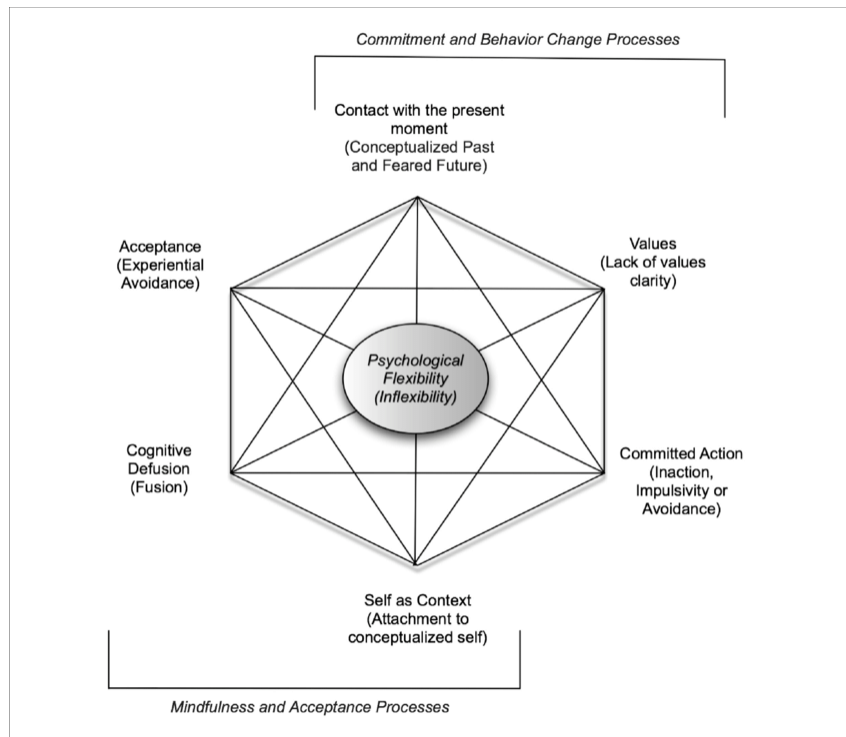
ACT is derived from Relational Frame Theory which poses that the core of human functioning through cognition and language, lies in the complex ways in which we relate to different stimuli (Hayes, 2004b). For example, people can relate to stimuli due to their non-arbitrary characteristics such as temporal (before/ after) or physical (smaller/ bigger) components; or through arbitrary responses which are learnt through experiential, societal or environmental features (Torneke, 2010). Through forming relational judgements about certain stimuli, we learn to interact with our environmental context. For example, we may see that a fifty-cent piece is bigger than a two-dollar coin (physical relation) however, through the process of learning we understand that the two-dollar coin is worth more than the fifty-cent piece (value relation). This relation may be useful when we are paying for an item or deciding how much to donate to a charity. Through making these 'relational frames', humans learn to interpret information and understand patterns and concepts (Flaxman, Bond and Livheim, 2013). Through relating different pieces of information, events and stimuli can also take on other functions. For example, if we hear a certain piece of music that reminds us of an enjoyable time with our friends, the music (stimuli) can be transformed into a function for

positive emotion. Through this ‘transformation of function’ different events and stimuli can change the way we relate to our environment and the way we think and feel about different situations (Bond, Hayes & Barnes- Holmes, 2006). These relational frames build over time until we develop stories which shape our view of the world. According to RFT, all human suffering and behavioural ineffectiveness can be traced back to human cognition and language. In this way, RFT suggests that unhelpful psychological processes are learnt through the of learning language itself, and ACT can support people in relearning ways to *relate to* unhelpful emotions, behaviours or physiological states (Bond, Hayes & Barnes-Holmes, 2006). The mechanism for how ACT purports to achieve this change in the way we relate to undesirable cognitions, emotions and physiological states is through increasing psychological flexibility.

Psychological flexibility

The core aim of ACT is to increase psychological flexibility, as a mechanism for changing the way we relate to unpleasurable internal states. Unlike traditional CBT methods, which strive to achieve symptom minimisation, ACT strives for symptom acceptance and workability to achieve optimal behavioural responses. Psychological flexibility can be specifically defined as “contacting the present moment as a conscious human being, and, based on what the situation affords, acting in accordance with one’s chosen values” (Hayes, et al. 2004b). There are six key psychological processes which comprise the psychological flexibility model and these are depicted in Figure 1 known as the “Hexaflex”, developed by Hayes et al. (2006). To understand psychological flexibility as a construct, these six psychological processes will be described and discussed in detail below.

Figure 1. The Hexaflex Model of ACT for Psychological Flexibility by Hayes et al. (2006)



1. *Cognitive Defusion.*

Cognitive defusion is when one recognises an unpleasant internal state and is able to distance oneself from these states and not take them literally (Hayes & Smith, 2004). Cognitive defusion allows people to create an inner environment where they are not excessively influenced by their internal states and can choose to behave in alignment with their goals or values. In this way, cognitive defusion allows one to change the way they relate to their internal states. For example, if someone generally feels anxious from receiving an email from their boss, getting an email may trigger thoughts of ‘What have I done wrong now?’ Instead of reacting defensively or in habitual ways, someone who is in a state of cognitive defusion would acknowledge the feeling, yet choose to act in ways aligned to their value of wanting to approach their work and their working relationships in a positive and professional manner in order to achieve their goal to advance their career. In this way, the internal state serves less function in influencing behaviour. On the other

hand, cognition fusion is when one allows an internal cognition, emotion or physiological state to influence their behaviour in ways that are not aligned to their goals. They are in a sense ‘fused’ with their thought or emotion so much so that this influences their actions and therefore behave in ways which are rigid, habitual or automated rather than in alignment with specific goals or values. (Flaxman, Bond & Hayes, 2013). When cognitive fusion occurs, the function of the internal state has transformed into an influencer of future behaviour. Activities such as thought repetition, saying the thoughts in a humorous voice or singing the thoughts to a tune are widely used cognitive defusion techniques (Harris, 2009).

2. *Acceptance*

Acceptance refers to a willingness to experience all internal states, and allowing room to experience all states, even if these are unpleasant, as suffering is a normal part of the human condition (Hayes & Smith, 2005). Rather than trying to fight against an unpleasant state, acceptance teaches one to acknowledge the state and accept its presence. The opposite of acceptance is ‘avoidance’ which is when one tries to avoid feeling negative emotions or thoughts either through control, numbing or distraction. Practising acceptance has been shown to be effective in reducing feelings of anxiety, and is an effective therapeutic strategy (Eifert & Heffner, 2003).

3. *Contact with the Present Moment (Mindfulness)*

Contact with the present moment or mindfulness is based on paying attention to the present moment, rather than focussing on past or future feelings or events. The aim of this is to be curious and non-judgemental towards the present internal states or surroundings (Hayes, 2004a). By being present, psychological flexibility is promoted as one can notice their internal state without judgement and learn to be comfortable with unpleasant

emotions or thoughts. The desired outcome of being present is the promotion of flexible, conscious responding to external events (Hayes, 2004a). There are several studies investigating mindfulness specifically and its positive relationship with psychological wellbeing (See Jamieson, 2017; Brown & Ryan, 2003).

4. *Self as Context*

The 'self as context' supports the development of psychological flexibility through the ability to view one's experience from the perspective of the observer (Flaxman, Bond & Liveheim, 2013). This process promotes non identification with one's roles, titles, emotions and sensations noting them as experiences that are separate to the 'the self.' This 'self as context' promotes psychological flexibility as one does not feel the need to defend these internal states, as they are not 'the self.' On the contrary, when one connects with their internal states as though these states are 'the self' cognitive fusion and attachment to these states promotes inflexible thinking (Hayes, 2004). Mindfulness exercises, where one is present and is taught to observe thoughts and feelings without judgement or attachment, are an example of the 'self as context' process supporting the development of psychological flexibility.

5. *Values*

According to Hayes, (2004a) within ACT values are a set of personally chosen guidelines for how one wants to live their life. Values differ from goals, in that goals can be reached however a value is a way of living. For example, a goal would be to run a marathon, whereas the value would be to lead a healthy and physically active life. The goal of ACT is for one to be aware of internal states, so they can choose their actions in accordance with their personally chosen values. According to ACT, living a life in absence of values means one is more likely to be influenced by external events, other people or their own changeable internal states and what 'feels good' at the time, which

promotes more behavioural rigidity and habitual responding (Flaxman, Bond and Livheim, 2013). The alternative is for one to define how they want to live (ie their personal values), and choose behaviours which support that way of living which is achieved through the development of psychological flexibility.

6. *Committed Action*

Finally, ACT promotes the changing of behavioural patterns, through committed actions which are driven by moving towards a life consistent with one's values (Bond, Hayes and Barns-Holmes, 2006). According to Hayes (2004b), through dependably choosing behaviours which align to personally chosen values, a sense of purpose and wellbeing is fostered. Confidence is also gained through the ability to be mindfully aware and accepting of internal states, without them interfering with the choice to pursue values driven action, which in turns creates a meaningful life.

Clinical Applications of ACT

According to Hayes (1999) the development of psychological flexibility through these six core psychological processes is the essence of ACT, and the mechanism for how ACT creates richer and more fulfilling lives. Given the transdiagnostic nature of the ACT model, this type of approach has been applied across a wide range of areas over the last 20 years. The Association for Contextual Behavioural website (2020) has cited over 300 randomised control trial studies which have explored the use of ACT to treat a myriad of different psychological conditions. To date, the available research shows strong support for the use of ACT in treatment of chronic pain (Gilpin et al., 2017; Simpson, Mars & Esteves, 2017); and modest support for its effectiveness with treating depression and anxiety (Forman et al., 2007), psychosis (Bach, Hayes & Gallop, 2012), and obsessive-compulsive disorders (Twohig et al. 2010). A systematic review undertaken by Twohig & Levin (2017) examined

36 randomised control trial studies evaluating the efficacy of ACT for the treatment of depression and anxiety disorders. The researchers found evidence to support that ACT is more effective than waitlist conditions (usually meaning no treatment received), and treatment as usual in reducing measures of depression and anxiety. Further, the authors concluded that ACT treatment produced results equivalent to the more traditionally used CBT. Several trials within Twohig & Levin's (2017) systematic review provided supportive evidence that the mechanism for change produced by ACT was psychological flexibility, which mediated the relationship between ACT and the treatment outcomes, confirming alignment with the theoretical underpinnings of ACT previously described. Other systematic reviews have also produced similar results indicating that ACT interventions produce change through the increase of psychological flexibility (Howell & Passmore, 2019). Thus, the body of evidence supporting the efficacy of ACT in positively impacting treatment outcomes through the mechanism of psychological flexibility is robust and expansive.

Organisational Applications of ACT

Unsurprisingly, ACT has been also been used to impact behavioural effectiveness in non-clinical settings. Because of RFT's applicability to all of human functioning and the underlying theoretical model of psychological flexibility, ACT has been applied across a whole range of human experiences including in organisational settings. Although traditionally used to treat specific psychological diagnoses, ACT has also been shown to be effective as a prevention strategy and to enhance individuals' strengths in the workplace. More specifically, the promotion of psychological flexibility through enhancing mindful awareness and values guided actions, has been applied to workplace stress reduction, the improvement of psychological wellbeing in the workplace, performance improvement, leadership development and occupational health and safety (Flaxman, Bond & Livheim, 2013; Hayes, Bond, Barnes-Holmes & Austin, 2012; Archer, 2018; Lobo, 2018).

ACT for Psychological wellbeing and stress management

Given the efficacy of ACT in treating psychological conditions such as depression and anxiety, it makes intuitive sense that this approach can also produce positive impacts on one's psychological wellbeing. There is a large evidence base to support that employees who have higher level of psychological wellbeing perform better in their work or studies (Wright & Cropanzano, 2000; Usman, 2017), so enhancing the mental health of employees and students can have benefits for individuals and organisations alike. Bond & Flaxman (2006) researched the relationship between psychological flexibility, job performance and psychological wellbeing through a longitudinal study of call centre workers in the United Kingdom. As hypothesised, higher levels of psychological flexibility at time one predicted higher psychological wellbeing and job performance at time three. These results support the notion that those who are more naturally have higher psychological flexibility are more likely to have better psychological wellbeing, which aligns with previous research (Bond & Bruce, 2003; Donald & Bond, 2004). These findings suggest that it may be helpful for organisations to consider ways they can enhance psychological flexibility through workplace interventions, in order to positively impact employee mental health and performance. More recent studies have built on the foundations of Bond & Flaxman's (2006) research by testing the efficacy of organisational ACT interventions in increasing levels of psychological wellbeing within university student and employee populations, through the mechanism of psychological flexibility.

ACT for psychological wellbeing in student samples

Frogeli et al. (2016) used a Randomised Control Trial (RCT) designed study to test the efficacy of an ACT Intervention in decreasing stress related illnesses amongst a sample of nursing students. The intervention consisted of six sessions of ACT based training, each

lasting two hours with the goal of promoting stress management resources through defusion and acceptance, values clarification exercises and mindfulness practise. The results showed that those in the intervention condition had higher levels of mindful awareness and lower levels of experiential avoidance, indicating that the intervention was successful in creating the desired change mechanisms stemming from psychological flexibility. Further, those in the intervention condition also report lower perceived stress levels than those in the control condition, providing support for the efficacy of the program in increasing psychological flexibility and managing perceived stress to support one's psychological wellbeing in a sample of future nurses. However, as no follow up measure was taken it is unclear whether these changes were sustained over time. Other studies using university student populations have also found support for the use of ACT in increasing psychological wellbeing, employing the use of online interventions. Viskovich & Pakenham (2018) tested the efficacy of a 4-module online ACT intervention against the following outcome measures: depression, anxiety, stress well-being, life satisfaction and self-compassion using a sample of university students. Participants allocated to the intervention condition showed improved scores post intervention for depression, anxiety, stress, wellbeing, self-compassion and life satisfaction, providing preliminary support for the intervention in improving student's mental health and psychological wellbeing. However, the attrition rate was high and no follow up measures were taken to determine if these improvements were ongoing. These results and study limitations were consistent with other online ACT intervention studies using university student samples (ie Rasanen et al 2016; Levin et al, 2014). Other meta-analysis studies have also produced favourable results, suggesting that ACT interventions can have positive impacts on student wellbeing (See Howell & Passmore, 2019).

ACT for psychological wellbeing in employees

The use of ACT to increase psychological wellbeing of employees within organisations has produced differing results, particularly in samples of management populations. For example, Ly, Aspland & Andersson (2014) tested the efficacy of a workplace stress management program, utilising an ACT based smart phone application for Swedish middle managers within medium to large organisations. Participants in the ACT intervention underwent six weeks of a step by step behaviour program with the purpose of teaching participants to use the six principles of ACT to manage their work stress. Results supported the effectiveness of the program, with those in the intervention condition reporting lower stress levels and better general health when compared to the control group. However, other studies employing ACT based interventions in a sample of managers have produced different results. For example, Deval, Bernard-Curie & Monestes (2017) examined the impact of a 12-hour ACT intervention (three sessions of four hours each) within a sample of leaders and senior managers who are likely to need behavioural skills in their roles. Although the intervention resulted in an increase in psychological flexibility which demonstrated the efficacy of the program in developing the appropriate change mechanisms, there was no difference between groups for psychological wellbeing. These findings suggest the relationship between psychological flexibility and psychological wellbeing may differ depending characteristics of the participant sample, specifically the employee's role requirements or position level in the organisation.

Other studies have investigated different outcome measures such as ability to adopt new skills and ways of working, job performance measures, perceived job control (see Varra, Hayes, Roget and Fisher, 2008; Luoma et al., 2007). Further, ACT has been used to enhance organisational outcomes within the areas of safety, organisational development, executive leadership and coaching (Flaxman, Bond & Livheim, 2013). Through the promotion of

behavioural flexibility and situational awareness, ACT has been shown to support better health and safety in the workplace and improve leadership competence (Moran, 2011). However, one key area of organisational performance where there appears to be a gap in the literature is ACT's role in supporting individuals and businesses in navigating organisational change.

Organisational change

To be successful in this era, organisations need to be able to readily anticipate and adapt to changing environments (Burnes, 2004). Competitor innovation, changing global markets, technology and ever-changing legislative governance means that organisations now more than ever are experiencing rapid and constant changes which impact how they do business (Al-Haddad & Kotnour, 2015). Despite this need for organisations to constantly plan for and adapt to changes, many organisational change initiatives do not achieve their desired outcomes, with research estimating that approximately 70% of all organisational changes fail (Beer & Nohria, 2000). As organisational change requires several potential adjustments to staffing, structure, workflows, communication, IT systems and communication, the potential areas of breakdown are high. In addition, organisational changes often require some form of coordinated behaviour change from multiple individuals for the initiative to produce meaningful outcomes (Weiner, Amick & Lee; 2008). A factor that has frequently been identified to be a primary contributor to organisational change failure is an individual's readiness for organisational change (Holt et al., 2007; Miller, Johnson & Grau, 1994; Rafferty et al., 2013). This is a potential area where organisational interventions may be relevant to support them to successfully prepare their employees for changes in the workplace.

Readiness for Organisational Change

There are several decades of research about best practise change management, and several models which outline the process of change within organisations. The original model which forms the foundation for other revised frameworks is Lewin's three step model of change which defines three states of change: unfreezing, moving and freezing (Lewin, 1951). The first step, "unfreezing", refers to the need for change being recognised within the organisation, and to start creating readiness for change. Readiness for organisational change has been defined as an individual's "beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization's capacity to successfully undertake those changes." (Armenakis, et al.1993: pp. 681). According to the model proposed by Rafferty et al. (2013), high levels of change readiness lead to higher change supportive behaviours, higher job attitudes and higher job performance. Essentially, the model proposes that if an employee has a more positive attitude towards the change, they are more likely to act in ways which support the change, increasing the likelihood of an organisational change being successful. However, many organisations fail to recognise the uncertainty, anxiety, resistance and stress which can be felt by employees before and during periods of organisational change, which in turn is likely to impact an individual's attitude towards a proposed change (Shah, et al. 2017; Conway & Monks, 2011). Research has highlighted two key components of individual readiness for organisational change: cognitive and affective components (Armenakis et al., 1993) The cognitive component refers to an individual's *beliefs* about the change. Armenakis et al. (1993) identified two beliefs as key components of change readiness, including the belief that change is needed and the belief that the individual and organization have the capacity to undertake change. The affective component of change readiness refers to how an individual *feels* about the change. Holt et al. (2007) extended their definition of change readiness to include how inclined an individual is to emotionally accept

the change, suggesting that those with more positive present and future emotional reactions towards the change will be higher in overall readiness for organisational change.

Mindfulness and readiness for organisational change

Mindfulness, which has been defined as a ‘state of consciousness where people focus on the present moment’ and are able to adjust their awareness to accurately interpret reality (Brown & Ryan, 2003), is one of the cognitive processes required to achieved psychological flexibility, as previously outlined in the ACT framework. Through adopting a non-judgemental approach to internal states and external circumstances, mindfulness allows one to disconnect from preconceived beliefs or biases, and recognise their own habitual ways of responding and behaving. In this way, mindfulness can also promote understanding of one’s own behaviour, reflection on its appropriateness and potential for responding in new ways (Hunter & Chaskalson, 2013). Within clinical settings, mindfulness training has been an effective component of treatment for stress, pain depression and substance abuse (Chiesa & Serretti, 2010). There are several links between how the mechanism of mindfulness contributes to readiness for change not just in one’s personal life but also within the workplace. Gartner (2013) reviewed how mindfulness promotes readiness for organisational change through exploring a range of propositions. Firstly, mindful individuals have been shown to have higher levels of perceived self-efficacy, which refers to an individual’s belief in their capacity to undertake behaviour to achieve a certain performance level (Bandura, 1977). In the context of organisational change, those who believe that they have the capability to change their behaviours at work despite the demands of change, exhibiting higher change self-efficacy, are more likely to adopt change supportive behaviours (see model by Rafferty et al., 2013). This aligns to the previously discussed Armenakis et al.’s (1993) model of organisational change readiness, with individual beliefs about ability to change being a core requirement for change readiness. Secondly, individuals who are higher

in mindfulness have been shown to have higher levels of perceived control (Brown, Ryan & Creswell, 2007). Studies have also shown that higher sense of control over a change leads to higher levels of change acceptance (see Wanberg and Banas, 2000). Further, both self-efficacy and perceived control have been shown to be positively correlated with readiness for organisational change. For instance, Cunningham et al. (2013) conducted a longitudinal study looking at the psychological and behavioural correlates of readiness for organisational change in sample of healthcare workers. The researchers found that workers in active jobs who had higher decision-making ability and control of their work, and those workers who reported high job change self-efficacy both scored higher on readiness for change. In addition to this, higher levels of readiness for organisational change predicted higher levels of participation in job redesign activities, providing support for Rafferty et al.'s (2013) model that states that higher readiness for change leads to change supportive behaviours. Finally, mindfulness promotes greater readiness for change through greater affective (emotional) self-regulation. Aikens et al. (2014) trialled the effectiveness of a Mindfulness based Stress Reduction (MBSR) program in the workplace, and found that those who participated in the program reported significant decreases in stress. In the context of organisational change individuals who are higher in mindfulness are able to recognise the feelings which can be evoked by organisational changes such as stress, uncertainty and negativity. Rather connecting with these emotions through cognitive rumination, mindfulness may allow people to disassociate from negative emotions and view the change through the context of the information provided, as opposed to viewing change through habitual ways of thinking or through preconceived ideas. These linkages show how enhancing mindfulness can have positive impacts on readiness for organisational change, through promoting self-efficacy, perceived control and emotional self-regulation. Although mindfulness has been examined here as a separate to ACT, their descriptions and mechanisms for producing change is very similar. Just as

mindfulness promotes being in the present moment, noticing thoughts and feelings non judgementally and encouraging dissociation from negative emotions, so does ACT through the development of psychological flexibility.

Recommendations for future research

A review of available research relating to the organisational applications of ACT, and the relationship between mindfulness and readiness for organisational change has revealed some gaps in the literature. Further research examining the relationship between psychological flexibility and readiness for organisational change is needed. In addition, to date, there have been no randomised control trials (RCT) examining the effectiveness of ACT interventions on readiness for organisational change. Recommendations for further research include:

- i) Examination of the relationship between psychological flexibility and readiness for organisational change;
- ii) Examination of the relationship between psychological flexibility and psychological wellbeing within samples of working adults;
- iii) Further research contributing to our understanding of the extent to which workplace ACT interventions can increase employee readiness for organisational change.

Conclusions:

Acceptance and Commitment Therapy (ACT) is a broadly researched clinical intervention which focusses on developing psychological flexibility through building the awareness and acceptance of unwanted internal states, and promoting values driven behaviour. Because of the transdiagnostic nature of ACT and its relevance to all human functioning and behaviour, more recently, ACT has also been used within organisations to

improve employee wellbeing, satisfaction and job performance. A review of the application of ACT in organisations to improve business outcomes has found some gaps in the literature which warrants further investigation. Available studies have revealed inconsistent results when exploring the relationship between psychological flexibility and psychological wellbeing. Future research to understand this relationship in a generalised working population is recommended.

The area of organisational change is largely studied area, mainly due to the high percentage of change initiatives which fail to meet their desired objectives. Decades of change management research consistently shows that an employee's readiness for organisational change, defined by how an employee thinks and feels about the change, is a key determinant of whether they will adopt change supportive behaviour, which will in turn impact whether a not an organisational change is successful (Rafferty et al. 2013). Therefore, further research is needed to identify ways in which organisations can improve employee readiness for organisational change. Future research which assesses the efficacy of ACT interventions in supporting employee readiness for organisational change is also recommended.

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**Psychological Flexibility and Readiness for Organisational Change: An
Online Acceptance and Commitment Therapy Pilot Intervention**



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Psychological Flexibility and Readiness for Organisational Change: An Online Acceptance and Commitment Therapy Pilot Intervention

Background: Acceptance and Commitment Therapy is a clinical intervention which has been applied to organisational contexts to enhance employee behaviours. This study aimed to test the efficacy of an online ACT intervention named YOLO (You Only Live Once) from Viskovich & Pakenham (2018) in increasing readiness for organisational change and psychological wellbeing.

Methods: A sample of 146 Australian adults aged between 25 and 60 with a working history of at least two years took part in the study. Participants were assigned to either the YOLO 4-week intervention group (N= 77) or a control group (N= 69). Measures were taken at pre intervention and post intervention for scores on psychological flexibility, psychological wellbeing and readiness for change.

Results: Positive relationships were found at pre intervention between psychological flexibility and readiness for organisational change and psychological wellbeing. The intervention group had significantly higher levels of readiness for organisational change at post intervention and compared to the control group. There were no significant changes for psychological flexibility or psychological wellbeing scores at post intervention.

Conclusions: Preliminary support was found for the effectiveness of the online intervention and feasibility of ACT in increasing employee readiness for organisational change. Further research into the relationship between psychological flexibility and readiness for organisational change is needed.

Keywords: Acceptance and Commitment Therapy; ACT; Readiness for Organisational Change; Psychological Flexibility; Psychological Wellbeing.

Making a Difference Statement

This article aims to Make a Difference (MAD) to understanding how Acceptance and Therapy Commitment can be applied to an organisational context, specifically within the area of change management. The study aimed to test whether an online ACT intervention can increase readiness for organisational change, which may be valuable for organisations seeking to prepare their employees for workplace changes.

1.1 Organisational Change

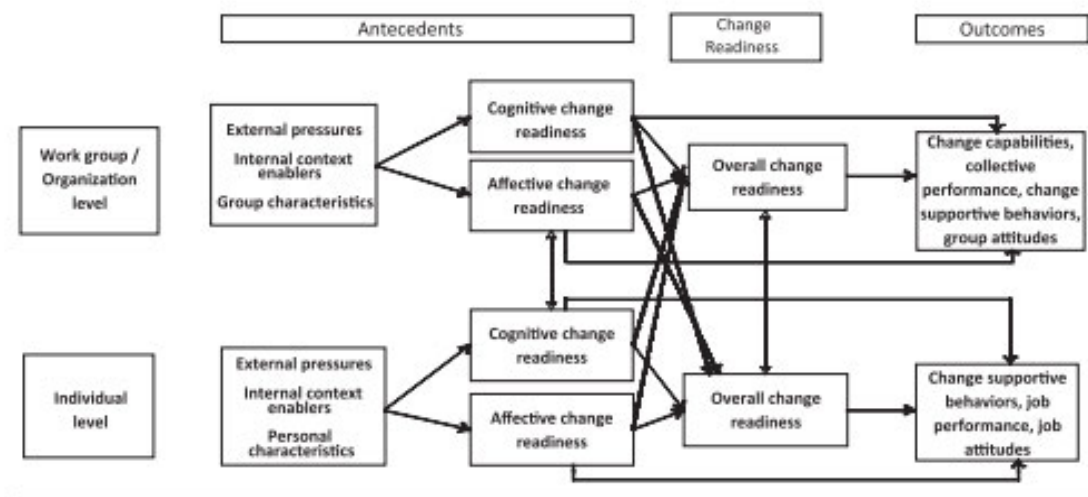
Constant change has become the “new normal” for organisations operating in today’s working environment. Multiple factors including technological advancements, changing external global markets, and evolving legislative requirements mean that organisations need to effectively manage change regularly (Al-Haddad & Kotnour, 2015). Organisational success relies on the organisation being able to anticipate and adapt quickly to external environments, as well as execute planned internal changes effectually. However, despite the need for effective change management, it is estimated that nearly 70% of all planned organisational changes fail to meet their desired objectives (Beer & Nohria, 2000). Whilst there is a myriad of factors which contribute to the downfall of many organisational change projects, one reason which has consistently appeared in the literature as a primary cause of their downfall is employee readiness for organisational change (Holt et al., 2007; Rafferty et al., 2013).

1.2 Readiness for Organisational Change

Readiness for organisational change has been defined as an individual’s “beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organisation’s capacity to successfully undertake those changes.” (Armenakis et al. 1993: pp. 681). This definition encompasses two components of readiness for organisational change: the cognitive and affective components (Armenakis et al., 1993). The cognitive aspect refers to an individual’s *beliefs* about the change, while the effective components refers to how a person *feels* about the change. According to Armenakis et al. (1993) there are four key domains which have been identified as core to higher levels of readiness for organisational change: i) the belief that the change is needed ii) the belief that the organisation and the individual have the capacity to undertake the change (change efficacy); iii) being emotionally

inclined to accept the change and iv) having positive present and future emotional reactions towards the change (Holt et al., 2007). Rafferty et al. (2013) proposed a model of change readiness which suggests that people with higher readiness for organisational change will display higher change supportive behaviors, job performance and job attitudes; which will in turn increase the likelihood of the change process being successful (See Figure 1). Thus, for organisations that are looking to increase their chances of achieving successful organisational change, it is worth understanding ways of promoting greater readiness for change with their employees.

Figure 1
Multilevel Framework of the Antecedents and Consequences of Readiness for Change



1.3 Mindfulness and Readiness for Organisational Change

Mindfulness, a concept which has been largely studied within clinical contexts, has also been used within organisations to positively impact employee’s behavior at work (Wasylikiw et al., 2015; Eby et al., 2019). Mindfulness has been defined as a ‘state of consciousness where people focus on the present moment’ and are able to accurately interpret their reality based on adjusting their awareness (Brown & Ryan, 2003). Mindfulness has been shown to promote increased readiness for organisational change through several mechanisms:

increased self-efficacy, perceived control and greater emotional regulation (Brown, Ryan & Creswell, 2007). Studies have shown that individuals who are more mindful are more likely to have higher levels of perceived self-efficacy (Gartner, 2013) and perceived control (Brown, Ryan & Creswell, 2007). A longitudinal study by Cunningham et al. (2010) which followed a sample of healthcare workers found that both perceived self-efficacy and perceived self-control were predictive of higher readiness for organisational change. Further, the researchers also found that those with higher levels of readiness for organisational change were more likely to engage in change supportive actions, such as participating in redesign workshops. These findings align with Rafferty et al.'s (2013) previously described model of individual readiness for organisational change, and provide preliminary support for the targeted use of mindfulness to increase readiness for organisational change. Although mindfulness is a standalone concept, it is also one component in the holistic and widely studied model of psychological flexibility, which will now be explored in relation to Acceptance and Commitment Therapy (ACT).

1.4 Acceptance and Commitment Therapy

Acceptance and Commitment Therapy (ACT) is a form of behavior therapy which has been extensively researched and applied to treat a range of psychological presentations. Unlike traditional forms of Cognitive Behavioral Therapy (CBT) which aim for symptom reduction through focusing on the content of thoughts (ie reducing negative thinking), ACT's focus is to change the context and the way we *relate* to internal cognitions, feelings and sensations (Hayes, 2004). Rather than trying to achieve the absence of unwanted thoughts and feelings, ACT uses the core processes of mindful acceptance and values driven action to promote desired behavioral outcomes and improved psychological wellbeing (Hayes, Strosahl, & Wilson, 2011). ACT is underpinned by a holistic theory of human cognition and language known as Relation Frame Theory (RFT) (Hayes, 1988). This theory posits that the

core of human suffering and behavioral ineffectiveness is through learning unhelpful psychological processes in the learning of language itself (Torneke, 2010). ACT has also been shown to support people to relearn ways of relating to unhelpful emotions, cognitions or sensations (Bond, Hayes, Barnes-Holmes, 2006).

1.5 Psychological flexibility

The mechanism used in ACT to change the way we relate to unpleasant internal states, is the development and increase of psychological flexibility (Hayes & Smith, 2005). The working model of psychological flexibility identifies six core processes which can be broadly grouped into two areas: acceptance and mindfulness processes, and commitment and behaviour change processes (Hayes et al., 2006). These are described below:

Acceptance and Mindfulness Processes:

- i) *Cognitive Defusion*. This refers to the ability to recognise an unhelpful internal state, without taking it literally (Hayes et al., 2004). This distance from the internal state allows a person to not be excessively influenced by thoughts, internal states feelings or sensations. The opposite of this is cognitive fusion which is where one allows their internal thoughts, feelings and emotions to dictate their behaviour. They are in a sense ‘fused’ with their thoughts.
- ii) *Acceptance*. This refers to being actively willing to experience all internal states, without trying to alter their frequency or form. Acceptance recognises that suffering is part of the human condition (Hayes, 2005). The opposite of acceptance is avoidance, where one tries to avoid painful internal states either through numbing, distraction or control.
- iii) *Contact with the present moment (Mindfulness)*. This supports the development of psychological flexibility through paying attention to the present moment, rather

than focussing on the past or future. The aim of mindfulness is to be non-judgemental towards present states or surroundings (Hayes, 2004).

- iv) *Self as context*. This refers to one's ability to view one's experience from the perspective of an observer, rather than identifying with the self as specific thoughts, titles, achievements etc. ACT uses various psychoeducative metaphor exercises to help weaken attachment to a conceptualised self (Flaxman, Bond & Liveheim, 2013).

Commitment and Behaviour Change processes:

- i) *Values*. Values are a set of individually selected guidelines for how wants to live their life. Values are different to goals, in that goals can be achieved where as a value is how someone wants to lead their life through identifying what is important them (Flaxman, Bond & Liveheim, 2013).
- ii) *Committed action*. This refers to the deliberate changing of behavioural patterns through conscious actions which move a person towards living a life which is more congruent with their chosen values (Bond, Hayes & Barnes-Holmes, 2006).

Through the promotion of increased psychological flexibility, ACT has been shown to achieve positive therapeutic outcomes across a range of psychological diagnoses including depression, anxiety, chronic pain, psychosis (Gilpin et al. 2017; Forman et al., 2007; Twohig et al., 2010). The transdiagnostic nature of ACT and its relevance to all of human functioning also allows transference of its principles into non clinical settings to support optimal wellbeing and behavioral functioning (Flaxman, Bond & Livheim, 2013).

1.6 ACT and psychological wellbeing

Considering the evidence supporting ACT's effectiveness in treating depression and anxiety, it is cogent that ACT has also been used in non-clinical samples to improve psychological wellbeing. Given the large body of evidence that people who are happier have

better performance at work and study (see Wright & Cropanzano, 2000; Bond & Flaxman, 2006), studies which investigate mechanisms for increasing psychological wellbeing have the potential to positively impact organizations and universities alike. Various studies have reviewed the effectiveness of ACT based interventions in increasing psychological wellbeing within university students (see Frogeli et al., 2016). For example, Levin et al. (2016) tested the efficacy of a 3-week online ACT intervention in reducing mental health issues such as depression, anxiety and stress within a sample of university students. The study found that increases in psychological flexibility were related to improved scores on the key outcome measures such as depression, anxiety and mindfulness, suggesting that ACT may be effective in improving psychological wellbeing through the mechanism of psychological flexibility. Other researches have also found similar results. For instance, Viskovich & Pakenham (2018) tested the efficacy of a 4-week online ACT intervention named YOLO (You Only Live Once) in a sample of university students. The intervention included exercises and videos which incorporated all six of the psychological processes in the psychological flexibility model. The results showed that those in the intervention condition had higher scores post intervention on depression anxiety, stress, wellbeing and self-compassion, providing preliminary support for the efficacy of the online program (Viskovich & Pakenham, 2018). However, the study was limited in that the attrition rate was high, and there were no follow up measures to determine if this was improvement was ongoing. Meta-analysis studies have also produced similar findings, confirming that ACT interventions can have had a positive impact on the psychological wellbeing of students (See Howell & Passmore, 2019).

The efficacy of ACT in increasing psychological wellbeing has also been studied within other organisational contexts. A longitudinal study using a sample of call center workers in the United Kingdom examined the relationship between psychological flexibility, psychological wellbeing and job performance (Bond & Flaxman, 2006). As hypothesised,

higher levels of psychological flexibility predicted higher psychological wellbeing and job performance, indicating that those who were naturally more psychologically flexible had better wellbeing and performance outcomes. These results are consistent with previous research examining psychological flexibility and job performance within working adults (Donaldson & Bond, 2004), and provides a foundation for further research to examine how psychological flexibility can be increased to improve individual and organisational results. Other studies have employed randomized control trial (RCT) methodologies to test the efficacy of interventions aimed to increase psychological flexibility and wellbeing. For example, a study by Ly, Aspland & Andersson; (2014) examined the effectiveness of a workplace stress management program which incorporated an ACT based smart phone application within a sample of Swedish middle managers working in medium sized businesses. Those in the intervention condition reported lower stress and better general health compared to the control group, supporting the effectiveness of the ACT intervention in producing favorable psychological and health outcomes (Ly, Aspland & Andersson; 2014). However, similar studies using a senior management cohort produced different results. For example, one randomised control trial study using a sample of leaders and senior managers which tested the efficacy of an ACT intervention found that there were no differences between the intervention and control groups for measures of psychological wellbeing, despite the intervention group showing higher levels of psychological flexibility post intervention (Deval et al., 2017). These inconsistent findings suggest that the relationship between psychological flexibility and psychological wellbeing may not be linear, and may depend on the characteristics of the sample group of employees or the ACT intervention which is utilized.

Theoretically, it seems plausible that ACT could contribute to supporting the behavioral repertoire of employees, particularly leaders, who are trying to navigate

organisational change. By allowing employees to make distinction between their own internal states, without feeling the need to connect with or defend these states, it may be possible for ACT to support employees to choose desired behaviors during an organisational change. Through the mechanisms of cognitive defusion and values-based actions, employees can learn to recognize and disconnect from unhelpful thinking patterns and choose to enact behaviors which are more aligned with successful performance and the success of the organization (Moran, 2011). Despite this logical progression for the use of ACT in supporting employees to navigate behavior change in the workplace, this is an area which has not been fully studied. To date, there are no intervention studies examining ACT's effectiveness in increasing employee readiness for organisational change.

1.7 Aims of the study

The broad aim of this study is to examine the relationship between psychological flexibility, psychological wellbeing and readiness for organisational change among working adults. Another aim is to pilot-test an online ACT program called YOLO (You Only Live Once) originally developed by Viskovich & Pakenham (2018). The YOLO program has previously been found to be effective in improving psychological wellbeing within a sample of university students when piloted by Viskovich & Pakenham (2018). The current study will examine whether the intervention can also impact psychological wellbeing of working adults.

On the basis of available research, it is hypothesised that

- i) Psychological flexibility will be positively correlated with psychological wellbeing and with readiness for organisational change.
- ii) Participants in the intervention condition will show significant improvements from pre to post intervention on the measures of psychological flexibility, psychological wellbeing and readiness for organisational change.

- iii) There will be also be a significant difference in psychological flexibility, psychological wellbeing, and readiness for organisational change between the intervention and control groups at post intervention.

Method

2.1 Participants, recruitment and procedure

Participants were 146 working adults holding Australian citizenship. Eligibility criteria included being aged between 25 and 60, fluent in English, have a working history of at least two years and to have had experienced some form of organisational change within their employment history. The majority of the participants were male (58.2%), predominantly aged between 25-30 (53.4%) or 31-40 (31.5%). Most participants held a Bachelor's degree (47.6%), or a Master's degree (21.8%). Only one participant had not finished high school (.7%). Most of the participants had never been married (61.9%). The majority of participants had been with their current employer for between 1 and 5 years (63.7%), followed by less than one year (17.1%). Full participant characteristics are summarised in Table 1.

Insert Table 1: Participant Demographics

Recruitment

Recruitment was undertaken through participant recruitment platform 'Prolific.' All participants were registered research participants through the website. Recruitment material described the study and time commitments associated with participation. Interested participants accessed a website which provided an overview of the 4-week program and study, and then had the option to consent to participate.

Participants in the intervention condition were required to undertake the 4- week ACT based online intervention known as YOLO (You Only Live Once- see section 2.25) which was originally developed by Viskovich & Pakenham (2018). Participants in the control

condition were not required to undertake any activity during the 4-weeks. Participants in both conditions completed pre questionnaires at the beginning of the study, which was undertaken through the YOLO platform. Participants in the intervention condition completed one module of the intervention per week, with access being granted to the next module at the beginning of each week for four weeks. Participation throughout the program was monitored by the researcher, through both the YOLO and Prolific platforms. Participants in the YOLO intervention condition received automated emails upon completion of the modules and outlining key learnings, and reminder emails when then next module became available for completion. Participants in the control condition were not required to undertake any activity during the four-week period. After 28 days, participants in both conditions completed the post program questionnaires. Participants were paid according to the time commitment, with those in the in YOLO intervention condition being paid a small incentive after completion of each module, and the control condition being paid after completion of each set of questionnaires. Attrition rates varied between groups. The control group reduced from N=69 to N=54 (22% attrition), and the intervention group reduced from N=77 to N=49 (37%) from pre to post intervention. Human Research Ethics approval was obtained from the University of Adelaide, School of Psychology Subcommittee.

2.2 Measures.

The following instruments were used to measure the main outcome variables: readiness for organisational change, psychological flexibility and psychological wellbeing.

2.21 Readiness for organisational change:

The Readiness for Organisational Change (ROCH) scale comprises 14 items originally developed by Hanpechern et al. (1998). An amended version by Madsen, et al. (2005) was used which had slight changes to the language of the items. Participants were asked to rate

the items on a Likert scale ranging from 1 (very unlikely) to 7 (very likely). This scale was chosen as it measures both affective and cognitive components of organisational readiness for change which aligns with Armenakis et al.'s (1993) model of readiness for change. An example item is: "My willingness to work more because of the change is." Mean scores were calculated with higher scores indicating higher levels of readiness for change. Cronbach's alpha was .87 indicating good internal consistency (George & Mallery, 2003).

2.22 Psychological flexibility:

The Work-Related Acceptance and Action Questionnaire (WAAQ; Bond & Guenole 2013) was used to measure psychological flexibility. This is a 7-item scale of psychological flexibility which measures the construct in particular work situations. Each item is rated on a 7-point Likert scale ranging from never true (1) to always true (7). An example item is: "When I feel depressed or anxious, I am unable to take care of my responsibilities". This scale was chosen over other measures (eg The Acceptance Action Questionnaire – AAQ; Bond et al. 2011) due to its specific applicability to psychological flexibility within work contexts. Mean scores were calculated with higher scores indicating higher levels of psychological flexibility. Cronbach's alpha was .90 indicating good internal consistency (George & Mallery, 2003)

2.23 Psychological Wellbeing

The 14-item Mental Health Continuum Short Form (Keyes, 2009) was used to measure psychological wellbeing as it is a widely used, reliable, and valid measure of emotional, social, and psychological well-being (Westerhof & Keyes, 2010). Participants rate the frequency of various experiences over the past month (e.g., satisfied with life, happy) on a 6-point scale ranging from 0 (never) to 5 (every day). A mean score is calculated, with higher scores indicating higher levels of psychological wellbeing. Cronbach's alpha was .93 indicating very good internal consistency (George & Mallery, 2003)

2.24 Demographics questionnaire

At the beginning of the study, all participants were asked to complete a demographics questionnaire which included information about the participants age, gender, marital status, educational attainment, and tenure with current their employer.

2.25 YOLO Program

YOLO (You Only Live Once) is an online intervention based on the six core ACT processes. The program was originally developed by Viskovich & Pakenham (2018) for use with university students. Before running the program, slight amendments were made so that any reference to university or schools were removed, so the program could be piloted with working adults. The program consisted of four modules lasting 30-40 minutes, with each module utilising one or two of the ACT processes in the psychological flexibility model (See Table 1 for content of program). Modules comprised of a number of exercises including videos, animations, audio clips and written exercises, each lasting between 5 and 15 minutes. Modules had to be undertaken in sequential order, with access to the next module being granted only after completion of the prior module. Participation was 100% online, with no direct face to face contact with the participants. Participants could access the intervention either through their home computer or smart phone. Upon completion of each module, participants received a recap email outlining the key learnings of the module, and reminder emails were also sent through the program to prompt participants to start the next module. All participants received a handout at the end summarising all the key learnings of the program, and links to various resources covered in the program.

Table 1: YOLO program content (Viskovich & Pakenham, 2018)

Module	Content
Module 1: Cognitive fusion	Thought evolution, defusion exercise (leaves on a stream), defusion task (e.g. observing thoughts). Defusion exercise (e.g. hands as thoughts).

Module 2: Acceptance	Definition of Acceptance, willingness video, metaphor (e.g. passengers on the bus) and elated task, acceptance exercise (struggle switch), metaphors (e.g. unwanted party guest, benefits of practising acceptance).
Module 3: Mindfulness and the observer self	Mindfulness definition, formal and informal mindfulness task, video on presence, tasks (e.g. practising mindfulness), metaphor (e.g. classroom metaphor) observing self-video, observer self-exercise (e.g. relaxation observation)
Module 4: Values and Committed action	Definition of values, working towards values video, values exercise (e.g. contemplating what is important in your life, 80-year-old birthday speech, values drop) committed action exercise (e.g. SMART goal training) trouble shooting (e.g. FEAR and Dare).

2.3 Design

The study used a 2 (Time: Pre intervention, Post intervention) by 2 (Condition group: Intervention; Control) design. The outcome variables were psychological flexibility, readiness for organisational change and psychological wellbeing.

2.4. Data analysis procedure

Prior to recruitment for the study commenced, statistical size calculations were undertaken to determine the required sample size needed for the study to produce satisfactory statistical power. A two-sample t-test for mean differences with unequal variances was used to calculate required sample size, based on the psychological wellbeing scores from Viskovich & Pakenham (2018). Results showed that a total sample size of 102 was required for clinically statistically significance between groups over time. Based on these calculations, initial recruitment aimed for 150 participants to account for attrition from pre to post intervention.

All variables were exported from Excel into SPSS for computing. Data was examined for accuracy and missing variables. Participants that provided incomplete data (eg completed

the demographic information only) were removed. The main outcomes measures for psychological wellbeing, psychological flexibility and readiness for change were checked for normal distribution. Cronbach's alpha was calculated for all measures: readiness for organisational change (.87), psychological flexibility (.90) and psychological wellbeing (.93), indicating good internal reliability for all measures.

Pre analysis was undertaken to check whether there were any differences between the intervention and control group at pre intervention. Independent samples t tests were used to check whether there were differences in the means of the outcome variables with no significant difference between groups found on any of the variables. To check for demographic differences a series of Fisher's exact statistic and Chi Squared analysis were run (Tabachnick & Fidell, 2013), which also found no significant differences on any of the demographical variables at pre intervention

Confirmatory factory analysis was applied to this study to test whether the data fit two hypothesized measurement models that are based on 3 domains from the ROCH 14-item measure – pre- and post-intervention. The reason for performing a CFA was because one of the questions was left out of the Readiness for Organisational Change questionnaire and the goodness of fit of the remaining model was in question.

Model fit measures were obtained to assess how well the proposed models captured the covariance between all the items or measures in the model. The root mean square error of approximation (RMSEA) test shows an adequate fit (0.0857) in pre model and a near adequate fit (0.1058) in post model. The standardised root mean square residual (SRMR) test shows an acceptable fit (0.0547 in pre model and 0.0632 in post model). The goodness of fit index indicates a near-good fit in the pre model (0.8767) and the post-model (0.8351), and the comparative fit index indicates an acceptable fit in both models (0.9150 in the pre model and

0.9024 in the post model). Correlation coefficients (all higher than 0.8) show that the factors are not independent. Overall, both CFA models were a good fit for the data.

To test the association between the variables, two linear regressions were performed for outcomes psychological wellbeing and readiness for change versus predictor psychological flexibility, in the pre intervention period. Assumptions of a linear regression were tested inspection of scatter plots and histograms of predicted values and residuals (Tabachnick & Fidell, 2013).

To test hypothesis two and three, six linear mixed-effects models were performed for outcomes: psychological wellbeing, readiness for change, and psychological flexibility, versus interaction of period (pre/post) and condition (control/ intervention) and then main effects only to allow for an in-depth exploration of the data (Grbich, 2016). A compound symmetry covariance structure was used to adjust for repeated measurements over time. This form of analysis was chosen as linear mixed effects model accommodates unequal between groups numbers (Tabachnick & Fidell, 2013). Assumptions of a linear regression were tested throughout by inspection of scatter plots and histograms of predicted values and residuals (Magezi, 2015)

Results

The data were analysed according to the ordered hypotheses, with the first set of results examining the relationships between the three variables (psychological flexibility, psychological wellbeing and readiness for organisational change) at pre intervention. The second part of the analysis examined the impact of the intervention on the primary outcome variables: psychological flexibility, psychological wellbeing and readiness for organisational change. Results will be discussed according to these sections: i) preliminary analysis ii) analysis of the relationships ii) analysis of the intervention effects.

3.1 Preliminary analysis

To check whether there were any differences between the intervention and control groups at pre-intervention on the primary variables, 3 independent samples t-tests were run. The results showed that there were no significant differences between means for any of the outcome variables (See Table 2).

Table 2: Comparing mean outcomes between the control and intervention groups at time 1

Outcome	<i>t</i> (<i>df</i>)	<i>p</i>	Hedges <i>g</i>	CI ^{lower}	CI ^{upper}
Psychological flexibility	-.29 (144) ^a	.77	.04	-.35	-.26
Psychological wellbeing	-.22 (144) ^a	.83	.03	-.35	-.28
Readiness for Organisational Change	.11 (144) ^a	.91	.03	-.24	-.27

^a Equal variances assumed as Levene's test for equality of variances was not significant.

To test whether there any differences demographically between the intervention and control groups at pre intervention a series of analysis were run. Fisher's exact statistic was used in place of chi-square to test for differences in age, educational attainment, marital status and years with current employer, as the expected cell count assumption was violated for Chi Squared analysis. There were no significant differences between groups for these variables. Chi square analysis was run for the variable gender, as assumptions of cell count were met. The results showed that there were no significant differences between the control and intervention group for gender $X^2(2, N=146) = 5.25, p = .065$.

3.2 Relationships between primary outcome variables

To test hypothesis one, two linear regressions were performed for outcomes psychological wellbeing and readiness for change versus predictor psychological flexibility in

the pre intervention-period. Assumptions of a linear regression were found to be upheld by inspection of scatter plots and histograms of predicted values and residuals. Both regressions had significant findings. Pearson’s correlation results indicated that there was a statistically significant, albeit weak, positive association between psychological flexibility and readiness for organisational change ($r(144) = .26, p = .001$) and also for psychological flexibility and psychological wellbeing ($r(144) = .28, p = .001$), in the pre intervention period. For every one unit increase in psychological flexibility, the readiness for change score increases by 0.21 (estimate=0.21, 95% confidence interval (CI): 0.08, 0.34). For every one unit increase in psychological flexibility, psychological wellbeing increased by .29 (estimate=.29, 95% confidence interval (CI): 0.13, 0.45). There was no significant relationship between psychological wellbeing and readiness for organisational change at pre intervention. See table 3 for full regression results and table 4 for descriptive statistics. Both of these results supported the original hypothesis that there would be a positive association between i) psychological flexibility and readiness for organisational change and ii) psychological flexibility and psychological wellbeing.

Table 3: Results of Regression analyses

Predictor	Outcomes	R	R₂	df	Estimate (95.% CI)	p
Psychological flexibility	Psychological wellbeing	.28	.08	144	.29 (0.13, 0.45)	0.001*
Psychological flexibility	Readiness for Organisational Change	.26	.07	144	.21 (0.08, 0.34)	0.002*

*Significant $p = < .05$

Insert Table 4: Descriptive statistics: Means and Standard deviations for primary outcomes at pre and post intervention

3.3 Examination of the intervention effects

To test the intervention effects, six linear mixed effects models were performed for the outcomes psychological wellbeing, psychological flexibility and readiness for

organisational change versus interaction of time (pre intervention/ post intervention) and condition (control/ intervention). Results showed that there was no statistically significant interaction or association between psychological flexibility, psychological wellbeing, and period and condition, adjusting for repeated measurements over time. This means there was no significant differences between the intervention group and the control group for scores on psychological flexibility or psychological wellbeing at post intervention, a finding which did not support the original hypothesis. However, there was a statistically significant interaction between period and condition for the outcome: readiness for change ($p = <.05$). At post intervention, participants in the intervention group had a readiness for change score of 0.46 units higher than the participants in the control group (estimate=-0.46, 95% CI: -0.76, -0.17). For the control group, post intervention readiness for change scores were 0.21 units less than pre intervention (estimate=-0.21, 95% CI: -0.40, -0.01, $p = <.05$). For the intervention condition, post intervention readiness for change scores were .24 units significantly higher than at pre intervention (estimate=0.24, 95% CI: 0.04, 0.44, $p < =.05$). This means that those participants in the intervention group had significantly higher readiness for change scores from pre to post intervention, and also significantly higher scores than the control group at post intervention, which supported the original hypothesis. There were no other significant findings (See Table 5 for full results and Figure 2 for effect size statistics).

Insert Table 5. Linear mixed-effects models of psychological outcomes versus interaction of period and Condition, adjusting for repeated measurements over time

Insert Figure 2: Linear mixed-effects model for readiness for change versus period and condition, adjusting for repeated measurements over time

Discussion

This study aimed to examine the relationships between psychological flexibility, readiness for organisational change, and psychological wellbeing. The study also aimed to examine whether the YOLO intervention, an online ACT based intervention pilot tested by

Viskovich & Pakenham (2018) could be used as an intervention to increase readiness for organisational change and psychological wellbeing within a sample of working Australian adults. Results found a weak positive association between psychological flexibility and psychological wellbeing and between psychological flexibility and readiness for organisational change at pre intervention in support of the first hypothesis. These associations increased to moderately positive associations at post intervention. The results also showed that following the intervention, those in the intervention group had significantly higher levels of readiness for organisational change than those in the control condition at post intervention, in partial support of the second hypothesis.

The positive relationship between psychological flexibility in a work context and readiness for organisational change is a unique finding, as the relationship between the two variables has not been formally studied yet to date. Considering these findings in light of the 'Hexaflex' model of psychological flexibility (Hayes et al., 2006), it may be plausibly suggested that people who are naturally able to adopt the psychological processes of acceptance and mindfulness, and commitment and behaviour change, may be more likely to have more positive affective and cognitive responses towards proposed changes in the work place. This supports Gartner's (2013) propositions that mindfulness may be key in the promotion of readiness for change within an organisational context. The results of this study also revealed that participants assigned to the intervention condition had significantly higher levels of readiness for organisational change post intervention, compared to the control condition, which may demonstrate the efficacy of the YOLO program (Viskovich & Pakenham, 2018) in positively impacting employee attitudes and feelings to increase readiness for changes in the workplace (Armenakis et al., 1993). The model of readiness for organisational change by Rafferty et al. (2013) proposed that people who are higher in readiness for organisational change will display higher change supportive behaviours and job

attitudes, which will in turn increase the likelihood of the change process being successful. This model was supported by Cunningham et al. (2010) who found that those who had higher levels of readiness for change were more likely to engage in change supportive behaviours. The findings of this study further contribute to the current research on readiness for organisational change by demonstrating that readiness for organisational change can be positively influenced through an online psychological intervention program. According to Rafferty et al.'s (2013) model this effect happens through increasing an employee's affective and cognitive responses to the proposed change. Specifically, the YOLO program was based on the psychological principles of Acceptance and Commitment Therapy (ACT) and the results of this study therefore provide preliminary support for the use of online ACT based interventions among employees as a way of influencing attitudes towards change and ultimately their readiness to engage in change supportive behaviours in the workplace. Applied practically, this finding may be valuable for organisations that are looking to prepare their employees for future organisational change.

Our study also found a relationship between psychological flexibility and psychological wellbeing. Again, considering this finding in light of the Hexaflex model of psychological flexibility (Hayes et al., 2006), it may be suggested that those who practise acceptance and mindfulness, as well as behaviours in alignment with their values, may have higher levels of general wellbeing. The relationship between psychological flexibility and psychological wellbeing found in this study is consistent with previous research (Bond & Flaxman, 2006; Bond & Bruce, 2003; Donald & Bond, 2004).

This study also investigated whether an ACT based intervention would be effective in increasing psychological flexibility and psychological wellbeing. Although those in the intervention group had slightly higher scores on psychological flexibility post intervention, this change was not considered statistically significant which did not support our hypotheses.

A potential reason for this may be the instrument used to measure psychological flexibility in this study. The WAAQ (Bond, Loyd & Geunole, 2013) which measures psychosocial flexibility specifically within the workplace was selected. An alternative would be a more general measure of individual psychological flexibility such as the AAQ-II. Some previous research (eg. Bond, Loyd & Geunole, 2013), has found a moderate correlation between the AAQ-II and the WAAQ, suggesting that they are likely to be measuring related constructs, but the correlation found was not high enough to demonstrate that the two instruments measure the same one. It may therefore be the case that the YOLO intervention was effective in increasing general psychological flexibility, rather than psychological flexibility within the workplace as measured by the WAAQ. This could also potentially explain why the intervention was effective in increasing readiness for organisational change, but not psychological flexibility in the workplace as assessed by the WAAQ.

The lack of an increase in psychological flexibility from pre to post intervention in this study also differed from Viskovich & Pakenham's (2018) studies using the YOLO program, which found significantly increased scores in separate measures of the psychological flexibility processes from pre to post intervention. This may be as Viskovich & Pakenham (2018) measured each of the six psychological processes in the model of psychological flexibility (Hayes et al., 2006) separately. By using separate instruments to measure each process, the researchers were able to identify which specific processes changed over time. It may be the case that some of the processes were enhanced in this study, however the WAAQ tool was not sensitive enough to measure these smaller components or any shifts which were made through the intervention. Viskovich & Pakenham (2020) also conducted a further randomised control study using the YOLO program, which included a three month follow up measure of all of the key psychological processes in psychological flexibility. The results showed that some of these scores continued to improve from post intervention to three

months follow up, indicating that changes in the components of psychological flexibility may take longer than the four weeks to be fully developed (Viskovich & Pakenham, 2020).

While the results of this study showed that the YOLO intervention resulted in higher levels of readiness for change, there were no difference in participants psychological wellbeing scores following the intervention. Previous studies using ACT interventions have found differing results, with some interventions being successful in increasing psychological wellbeing (See Levin et al., 2014; Rasanen et al. 2016), and others not producing any statistically significant differences (See Deval, Bernard-Curie & Monestes, 2017). Potentially these differing results may be due to a variety of factors including the length and content of the intervention, the participant sample or the measure of the psychological wellbeing used. In Viskovich & Pakenham's (2020) randomised control trial study, psychological wellbeing continued to increase from post intervention to three months follow, again suggesting that this construct may need more than the four-week intervention period to fully develop. A post intervention follow-up measure would have been valuable in understanding this possibility further, however due to the time constraints of the study this was not undertaken.

4.1 Limitations

This was a pilot study to test the efficacy of the YOLO program (Viskovich & Pakenham, 2018), in increasing readiness for organisational change, and there are some limitations worth noting. Firstly, whilst the sample size used was enough to calculate statistically significant power, there was a high attrition rate and the number of participants at post intervention was lower ($N=103$). There was also substantial attrition in both the intervention (37%) and control groups (22%). Another possible limitation of this study is that, due to the online recruitment platform used to source participants, randomised allocation to conditions was not possible and participants chose which condition they wanted to be in, as

each condition was advertised as a separate study. Although results showed that there were no significant differences between the control and intervention groups at pre intervention, providing some additional validity of the results, a randomised control trial design was not used in his study. Another possible limitation is that no follow up measure was taken post intervention, so it is unclear whether the intervention effects were sustained over time. A follow up measure would have also been useful in ascertaining whether psychological flexibility and psychological wellbeing required more time to develop post the intervention.

4.2 Future research

Further research to build upon the preliminary findings in this study would be valuable in increasing our understanding of the relationship between readiness for psychological flexibility, psychological wellbeing and readiness for organisational change. It is recommended that future studies employ a randomised control trial to investigate the impact of ACT interventions on readiness for organisational change and psychological wellbeing. Studies should use larger samples and include a post intervention follow up measure, potentially three months after succession of the intervention to ascertain whether changes are maintained over time. It is also recommended that future studies include specific measures of the psychological processes which are included in the model of psychological flexibility model (e.g. cognitive defusion, acceptance, mindfulness, self as context, values, committed action) to ascertain which processes act as mechanisms for change. Finally, the use of alternative measures of psychological flexibility or the use of both the AAQ-II (Bond et al. 2011) in addition to the WAAQ (Bond, Lloyd & Guonole, 2013) is recommended.

Conclusion

This study investigated the relationships between psychological flexibility, psychological wellbeing and readiness for organisational change. Additionally, the

effectiveness of an ACT based online intervention (YOLO) developed by Viskovich & Pakenham (2018) was assessed. Results showed a positive relationship between psychological flexibility and readiness for organisational change, a unique contribution to the readiness for organisational change literature. Further, the online ACT intervention was effective in significantly increasing readiness for organisational change. This finding highlights the possible applicability of ACT within organisational contexts, a framework which has traditionally been used with clinical populations. Applied practically, this finding may also be valuable for organisations that are seeking to support their employees to prepare for organisational changes in the workplace. An important priority for further research is to further understand the mechanisms for how ACT interventions increase readiness for organisational change, and whether these changes can be sustained over time.

Disclosure statement

No conflicts of interest are reported by the authors

Data availability statement

Data for this research can be made available on request to the primary author

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Table 1: Participant demographics

Characteristic	Whole sample at pre intervention (N= 146)		Intervention Group (N=77)		Control Group (N= 69)	
	N	%	N	%	N	%
Gender						
male	85	58.2%	38	49.4%	46	66.6%
female	61	41.8%	39	50.6%	23	33.3%
Education Level						
Less than high school	1	.7%	1	1.3%	0	0.00%
High school completion	23	15.7%	14	18.9%	9	11.4%
Some university but no degree	19	12.9%	7	9.1%	12	17.1%
Bachelor degree	70	47.6%	33	42.9%	37	52.9%
Master's degree	32	21.8%	20	25.9%	12	17.1%
Doctoral degree	4	2.7%	2	2.6%	2	1.4%
Age						
25-30	78	53.4%	38	49.4%	40	58.0%
31-40	46	31.5%	26	33.8%	20	29.0%
41-50	12	8.2%	7	9.1%	5	7.2%
51-60	9	6.2%	6	7.8%	3	4.3%
61+	1	.7%	0	0.0%	1	1.4%
Marital status						
Divorced	4	2.7%	4	5.2%	0	0.0%
Married	50	34.2%	27	35.1%	23	33.3%
Never married	90	61.6%	45	58.4%	45	65.2%
Separated	1	.7%	0	0.0%	1	1.4%
Widowed	1	.7%	1	1.3%	0	0.0%
Years with current employer						
Less than 1 year	25	17.1%	12	15.6%	13	18.6%
1 to 5 years	93	63.7%	49	63.6%	44	63.8%
6 to 10 years	16	11.0%	11	14.3%	5	7.1%
11 to 15 years	9	6.2%	5	6.5%	4	5.8%
16 to 20 years	2	1.4%	0	0.0%	2	2.9%
Over 20 years	1	.7%	0	0.0%	1	1.4%

Table 4: Descriptive statistics: Means and Standard deviations for primary outcomes at pre and post intervention

Outcomes	Pre intervention	Post intervention
	<i>M (SD)</i>	<i>M (SD)</i>
Total sample	N=146	N=103
Psychological flexibility	5.18 (.94)	5.28 (.84)
Psychological wellbeing	2.70 (.95)	2.68 (.97)
Readiness for organisational change	5.07 (.76)	5.08 (.86)
Intervention group	N= 77	N=49
Psychological Flexibility	5.16 (.94)	5.35 (.87)
Psychological Wellbeing	2.69 (.98)	2.72 (.96)
Readiness for Organisational Change	5.06 (.76)	5.37 (.80)**
Control Group	N=69	N=54
Psychological Flexibility	5.20 (.95)	5.21 (.82)
Psychological Wellbeing	2.72 (.93)	2.63 (.99)
Readiness for Organisational Change	5.06 (.76)	4.82 (.84)**

** p <.05

Table 5: Linear mixed-effects models of outcome variables versus interaction of period and Condition, adjusting for repeated measurements over time

Outcome	Period comparison	Condition comparison	Estimate (95% CI)	Comparison <i>p</i> value	Interaction/ Global <i>p</i> value
Psychological Wellbeing	Post	Control vs intervention	-0.17 (-0.51, 0.18)	0.3383	0.0794
	Post vs pre	Control	-0.10 (-0.26, 0.05)	0.1831	
	Post vs pre	Intervention	0.10 (-0.07, 0.26)	0.2451	
	Pre	Control vs intervention	0.03 (-0.29, 0.36)	0.8326	
Psychological Wellbeing	Post vs Pre		-0.01 (-0.12, 0.10)		0.8745
		control vs intervention	-0.04 (-0.35, 0.27)		0.8078
Psychological flexibility	Post	control vs intervention	-0.06 (-0.39, 0.27)	0.7099	0.4233
	Post vs pre	Control	0.02 (-0.17, 0.20)	0.8707	
	Post vs pre	Intervention	0.12 (-0.07, 0.31)	0.2058	
	Pre	Control vs Intervention	0.05 (-0.25, 0.35)	0.7644	
Psychological flexibility	Post vs Pre		0.07 (-0.07, 0.20)		0.3183
		Control vs Intervention	0.01 (-0.28, 0.29)		0.9668
Readiness for change	Post	Control vs Intervention	-0.46 (-0.76, -0.17)	0.0022**	0.0017**
	Post vs pre	Control	-0.21 (-0.40, -0.01)	0.0352**	
	Post vs pre	Intervention	0.24 (0.04, 0.44)	0.0169**	
	Pre	Control vs Intervention	-0.01 (-0.27, 0.24)	0.9118	
Readiness for change	Post vs Pre		0.01 (-0.13, 0.15)	0.8774	0.8774
		Control vs Intervention	-0.19 (-0.42, 0.05)	0.1279	0.1279

** Significant $p = < .05$

Figure 2. Linear mixed-effects model for readiness for change versus period and condition, adjusting for repeated measurements over time

Type 3 Tests of Fixed Effects				
<i>Effect</i>	<i>Num DF</i>	<i>Den DF</i>	<i>F Value</i>	<i>Pr > F</i>
<i>Period</i>	1	102	0.02	0.8774
<i>Condition</i>	1	144	2.35	0.1279

<i>Effect</i>	<i>Period</i>	<i>Condition</i>	<i>Estimate</i>	<i>Standard Error</i>	<i>DF</i>	<i>t</i>	<i>p</i>	<i>Lower</i>	<i>Upper</i>
Period	post		5.0761	0.07501	102	67.68	<.0001	4.9273	5.2249
Period	pre		5.0650	0.06618	102	76.53	<.0001	4.9337	5.1963
Condition		c	4.9780	0.08720	144	57.09	<.0001	4.8057	5.1504
Condition		i	5.1631	0.08448	144	61.11	<.0001	4.9961	5.3301

<i>Effect</i>	<i>Period</i>	<i>Condition</i>	<i>_Period</i>	<i>_Condition</i>	<i>Estimate</i>	<i>Standard Error</i>	<i>DF</i>	<i>t Value</i>	<i>Pr > t </i>	<i>Lower</i>	<i>Upper</i>
Period	post		pre		0.01108	0.07162	102	0.15	0.8774	-0.1310	0.1531
Condition		control		intervention	-0.1850	0.1208	144	-1.53	0.1279	-0.4239	0.05379

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