Developing a theoretical framework for studying the effects of feedback in psychotherapy and clinical practice

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Abstract

How can we deliver feedback that enhances therapeutic outcomes for clients? As we shift from investigating whether feedback works to asking how feedback works, the need for a sound feedback theory to guide clinical practice becomes more evident. The present thesis reports a series of investigations into mediators and moderators of feedback response, with the aim of developing a preliminary theoretical framework for understanding how clinical feedback works.

Section One of this thesis describes the validation of a novel computer task to assess the effect of providing feedback on decision-making. Results indicated that providing feedback improved judgment accuracy, adding support for the role of feedback in aiding decision-making. We also found that having control over the task did not enhance feedback use, but self-esteem influenced how confident individuals were in their decisions when they had control.

Self-esteem also emerged as an important moderator of feedback response in Section Two. The two studies in this section attempted to identify feedback and individual-difference variables which influence how individuals respond to feedback. The first study provided participants with feedback about their blood pressure during a relaxation exercise. It was observed that providing on-track versus not-on-track feedback differentially affected the extent of relaxation, and this relationship was mediated by participants’ cognitive-affective reactions. The second study demonstrated that self-esteem significantly moderated the effect of providing not-on-track feedback on treatment outcomes, highlighting that the way feedback is presented may influence clients’ responses.

Section Three tested this role of feedback presentation by surveying trainee therapists’ perceptions of different graphical styles of progress feedback. Trainee
therapists reported that presenting not-on-track feedback may diminish client’s self-esteem while on-track feedback may enhance self-esteem. However, they rated the different styles of presentation as equally useful in promoting clinical conversations with clients about the feedback.

Finally, the findings from the present thesis were synthesised into a preliminary theoretical framework for understanding how clinical feedback works. This framework may be used as a heuristic to guide further feedback research, and to explore practical implications for the delivery and use of feedback in clinical practice.
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Statement of Candidate Contribution

The candidate played the major role in study design, preparation of study materials, data collection, analyses, interpretation, writing, and revisions for all the studies reported within this thesis, with exceptions noted below:

- Coordinating supervisor Andrew Page jointly designed all studies with the candidate, and programmed the task for both experiments in Chapter 1. Andrew Page and co-supervisor Elizabeth Newnham assisted in developing the questionnaire used in Chapter 4. Both supervisors contributed to, and approved of, the final chapters within the thesis.

- For Experiment 2 of Chapter 1, Amelia Harvey and Paula Chinnery worked with the candidate on the study by assisting with participant recruitment and data collection. Ye’Elah Berman assisted with participant recruitment and testing for the pilot study reported in Experiment 1 of the same chapter.

- Geoff Hooke managed the data collection for Chapter 3, and participated in the development of the questionnaire for Chapter 4.

The candidate has the permission of all contributors to include the work in this thesis.
GENERAL INTRODUCTION
“How are we doing?” A Review of the Current State of Clinical Feedback Interventions and Directions for Further Research

“Without direct feedback on how their clients are progressing, therapists are essentially wearing a blindfold while shooting at a target.” (Sapyta, Riemer, & Bickman, 2005, pp. 152-153).

Feedback systems are ubiquitous in medical practice. Doctors use a variety of objective measures (e.g., heart rate, blood pressure, temperature) to monitor their patients’ progress. These test results inform clinical decisions about treatment selection. Furthermore, the decision-making processes generate a feedback loop: preliminary evidence indicates the use of a specific treatment; following implementation, subsequent tests evaluate the effectiveness of the treatment, and inform decisions about whether to proceed with the current course of treatment or to switch courses.

Whilst feedback systems are in place to guide medical practice, robust feedback systems have historically been absent from mental health settings (Zimmerman, Chelminski, Young, & Dalrymple, 2011). The idea of measuring and monitoring a client’s progress to evaluate ongoing psychological treatment is not new. In early conceptualisations of the practice of clinical psychology, Witmer (1907/1996) stated that the therapist would “look upon his efforts as an experiment, … [and] study every favourable or unfavourable reaction of the patient with reference to the patient’s previous condition and the remedial agents he has employed” (p. 251). However, compared to medicine’s relatively well-established
and routine systems, monitoring and feedback initiatives within mental health are in their early stages of development and have not gained a widespread standard-practice status. While some sectors have observed greater adoption of outcome measures in therapists’ practice (Burgess, Coombs, Clarke, Dickson, & Pirkis, 2012), others have expressed that current standards are still far from the ideal. Moreover, some clinicians remain ambivalent about the value of monitoring despite substantial evidence of its benefits to clinical practice (Duncan & Murray, 2012).

In settings where outcome measures have been used, clients have traditionally been assessed at two time points – the beginning and end of therapy. Consequently, clients who are not doing well may go undetected until they leave treatment, at which point no further intervention can occur. To prevent this and to ensure that clients receive the most effective care possible, a system that provides therapists with information about client progress in real time needs to be in place to assist them in evaluating and making decisions about treatment.

Progress monitoring and feedback interventions provide such a system, and their role as a staple component of mental health best practice is increasingly recognised (Zimmerman et al., 2011). Analogous to the use of a thermometer, the basic monitoring system in psychotherapy involves administering standard psychological measures to assess and track client progress throughout therapy. The scores on this “mental health thermometer” are then fed back to the therapist and/or client. Receiving feedback enables therapists to identify clients who are not doing well and are at risk of treatment failure, and modify treatment accordingly. This process increases the likelihood of achieving more positive outcomes by the end of therapy (Lambert, 2013b; Lambert, Hansen, & Finch, 2001).
Before proceeding, it is important to note that the aforementioned system of monitoring and feedback differs from the “feedback” that therapists typically gather. The routine administration of specific quantitative measures provides a systematic procedure for tracking progress, and provides an objective benchmark with which therapists can evaluate changes in functional status. This contrasts with the informal, but more common, practice of asking clients “how they are going” at every session as a form of collecting “feedback” about progress. While therapists are constantly receiving this kind of informal feedback from clients’ verbal and non-verbal interactions, the feedback that we refer to within the present thesis denotes specific feedback information derived from formal measures. The importance of this distinction will become clearer when we explore inaccuracies in therapists’ clinical judgments later in this chapter.

To date, the most common monitoring and feedback system used in mental health settings models the system designed by Lambert, Whipple, and colleagues (2001). In their system, individuals receiving outpatient psychotherapy complete the Outcome Questionnaire (OQ), a 45-item measure of general psychological dysfunction, at every treatment session. Each time the OQ is completed (typically on a weekly basis), the therapist and/or client receives a feedback graph plotting the OQ scores over the number of sessions. Therapists are provided with an explanation of the feedback, but are not required to follow specific instructions on what to do with the feedback. In this way, the feedback intervention imposes little interference on therapists’ routine clinical practice.

Another crucial feature of the feedback system is the use of statistical methods to identify whether the client is making (or not making) expected progress. For example, the client’s scores can be compared to quantify the amount of change
made between sessions and determine the significance of this change (e.g., recovered, improved, no change, or deteriorated). Statistical modelling techniques can also be used to generate expected therapy response curves based on a group of clients with similar characteristics. An individual client’s scores can then be compared against these expected curves – deviations from these expected curves subsequently indicate that the client is not making expected progress (Lutz, Martinovich, Howard, & Leon, 2002). Through such methods, the feedback can serve as an “alarm signal” for therapists to detect clients who are not doing well, and this may be an important contributing factor to the effectiveness of feedback systems.

**Does Feedback Work? A Summary of Findings from Effectiveness Studies**

At present, various monitoring and feedback systems have been implemented across several countries, including the United States (Lambert, Whipple, et al., 2001; Miller, Duncan, Sorrell, & Brown, 2005), the Netherlands (De Jong, Van Sluis, Nugter, Heiser, & Spinhoven, 2012), Germany (Lutz et al., 2002), the United Kingdom (Barkham et al., 2001), and Australia (Newnham, Hooke, & Page, 2010b). These systems appear to be similarly effective across different settings and client age groups (e.g., Bickman, Kelley, Breda, De Andrade, & Riemer, 2011; Crits-Christoph et al., 2012; Murphy, Rashleigh, & Timulak, 2012; Simon et al., 2013). Within most studies, feedback effectiveness was evaluated by measuring health outcomes (e.g., post-treatment symptom levels; proportions of clients achieving clinically significant improvement or deterioration), or by comparing lengths of treatment. Based on these indicators, feedback interventions have generally been shown to be effective (Shimokawa, Lambert, & Smart, 2010), yielding small to moderate effects consistent with studies of feedback in general healthcare settings (Boyce & Browne, 2013).
More specifically, levels of effectiveness tend to vary depending on the progress status of the client (on-track vs. not-on-track), and the type of feedback intervention (i.e., whether feedback is provided to the therapist and client, or to the therapist only; Shimokawa et al., 2010).

**Effectiveness as a Function of Client Status**

Feedback benefits on overall treatment outcomes have been demonstrated more frequently for clients identified as not-on-track, and less frequently for clients identified as on-track (De Jong et al., 2012; Newnham et al., 2010b; Shimokawa et al., 2010). This pattern of findings is not surprising given the rationale behind feedback interventions - that is, the aim is to assist therapists in identifying clients at risk of treatment failure and respond accordingly. By definition, a “not-on-track” status indicates that the client is not making expected progress, and is likely to have a poor outcome at the end of therapy. This is typically determined by comparison to an expected trajectory of recovery, and deviations from the trajectory. Conversely a client who is on-track is making expected progress, and his/her outcome measure falls within the expected trajectory of recovery.

When therapists received feedback, clients who were not-on-track showed greater reductions in symptoms compared to clients of therapists who did not receive feedback (Lambert, Whipple, et al., 2001; Lambert et al., 2002). This improvement represented an important overall benefit as significantly fewer clients deteriorated, and more clients left therapy improved or recovered. Furthermore, these feedback effects were more pronounced for clients who remained in therapy long enough to experience the benefits (Shimokawa et al., 2010). Some studies have also observed that clients who were not-on-track attended more treatment sessions after receiving feedback, leading to the suggestion that feedback works by retaining at-risk clients in
treatment for a longer time to assist them in getting back on-track (Lambert, Whipple, et al., 2001). Comparing across studies, Shimokawa and colleagues (2010) found no significant difference in treatment length between feedback to therapist only and treatment as usual, but increased session attendance for feedback to therapist and client relative to treatment as usual. As possible mechanisms of change, the effects of feedback on treatment length, and what happens in therapy following detection of not-on-track clients, warrant further investigation.

For clients identified as on-track, different effects have been observed. Lambert and colleagues found that providing feedback did not affect treatment outcomes; additionally, providing feedback either reduced (Lambert, Whipple, et al., 2001) or did not affect (Lambert et al., 2002) the number of treatment sessions. Collective findings across the studies analysed by Shimokawa et al. (2010) painted a more positive picture for this sub-group of clients, revealing a significant reduction in levels of symptomatic distress following feedback interventions. The analysis also showed that on-track clients were more likely to achieve clinically-significant improvement, and less or equally likely to deteriorate compared to treatment as usual. Therefore, while the benefits of feedback may not be as substantial as that observed in clients who are not-on-track, feedback interventions appear to be promising for clients who are on-track as well.

**Effectiveness Based on Type of Feedback Intervention**

In investigating the active mechanisms of feedback, studies have compared the effects of providing feedback to both therapist and client versus the therapist alone. While some studies have found significantly greater improvements when feedback is provided to both the therapist and client (Hawkins, Lambert, Vermeersch, Slade, & Tuttle, 2004), other studies have not observed any significant
differences (Harmon et al., 2007). Discrepancies in findings between studies may be attributable to factors besides the actual feedback intervention, such as differences in symptom severity between client samples (Harmon et al., 2007).

A meta-analysis of six feedback studies from Lambert’s research group (reported by Shimokawa et al., 2010) suggested that providing feedback to both therapists and clients did not produce significant benefits in treatment outcomes over and above providing feedback to therapists alone. This comparison between the effects of therapist-client feedback versus therapist-only feedback is interesting as it may provide insight into the active mechanisms of feedback-induced change. On one hand, providing feedback to the client may increase transparency and accountability within therapy, and empower the client through increased collaborative engagement (Gifford, 2012; Zimmerman et al., 2011). Therapists may also be more likely to use the feedback if they know that their clients have direct access to it (De Jong et al., 2014). On the other hand, if providing clients with feedback did not augment the benefits accrued from providing feedback to the therapist alone, then therapists may be the catalyst for change. As the feedback content is derived from the client’s self-report of functioning, the feedback may provide little novel information to the client, but may be most noteworthy for therapists (although see Hawkins et al., 2004 for a counter-argument).

However, given that how therapists used feedback was not closely monitored across studies (Harmon et al., 2007; Shimokawa et al., 2010), it is unclear whether therapists in the therapist-only feedback condition shared the feedback with their clients. To gain a clearer understanding of differences between providing feedback to therapists and clients versus therapists only, Harmon et al. (2007) encouraged the exploration of how feedback was shared and used by therapists. Such an exploration
of feedback usage can be executed via mixed methods (e.g., qualitative studies, surveys, experimental methods). These diverse methods of investigation are vital in elucidating the effective components of feedback interventions.

**Other Feedback Benefits**

Thus far, we have described studies that demonstrate the effectiveness of feedback through changes in health outcomes or length of treatment. Given that the observed feedback benefits are more pronounced for clients who remained in treatment longer (Shimokawa et al., 2010), this prompts us to consider the possibility of feedback benefits that do not present immediately after treatment termination, or that have not typically been measured in previous trials. Some of these benefits include improved diagnostic and treatment processes, higher ratings of patient satisfaction, and enhanced communication between patients and healthcare professionals (Carlier et al., 2012; Espallargues, Valderas, & Alonso, 2000). Similarly, Byrne, Hooke, Newnham, and Page (2012) did not observe significant improvements in treatment outcomes following feedback, but instead found other feedback benefits for clients who were on-track. In their trial, clients undergoing a two-week intensive group cognitive-behavioural therapy program completed a daily monitoring measure and received feedback on their progress at the end of the first week. Byrne and colleagues found that providing feedback reduced hospital readmission rates at six months post-treatment for clients who were on-track at the point of feedback, despite no demonstrable improvements in wellbeing or depression scores (Newnham et al., 2010b). In these two examples, feedback effects were not demonstrated on outcomes measured at treatment termination, but on treatment processes, or on client outcomes at a time point following treatment termination. It appears that the extent to which feedback is found to be effective varies with the
dependent measures used. Thus when evaluating findings from feedback trials, it may be helpful to consider how the desired outcomes were defined and measured. Moreover, the two examples suggest that the modest effects observed thus far in clinical trials should not devalue the role of feedback in clinical practice; rather, continued efforts to understand why feedback might be helpful for some clients (and their therapists) are needed.

The initial successes following from implementation of feedback interventions have also led to applications across various treatment settings (e.g., outpatients vs. inpatients; De Jong et al., 2012; Newnham et al., 2010b), therapy formats (e.g., individual vs. group therapy; Newnham et al., 2010b; Shimokawa et al., 2010), age groups (Bickman et al., 2011), and presenting problems (e.g., alcohol use, eating disorders; Crits-Christoph et al., 2012; Simon et al., 2013). Several of these applications have shown promising benefits that warrant continued development and investigation.

**Subsequent Research and Practice Initiatives**

Having established that monitoring and feedback interventions are effective psychotherapeutic tools, efforts are now being invested into enhancing the applicability and transportability of such interventions across different treatment settings. Institutions have rolled out routine session-by-session outcomes monitoring initiatives (e.g., the National Health Services’ [NHS] Children and Young People’s Improving Access to Psychological Therapies [CYP IAPT] program; Norman, Dean, Hansford, & Ford, 2013), sealing the exercise of monitoring and providing progress feedback as an intervention in its own right.

Researchers are now expanding their scope of inquiry to ways of augmenting the effectiveness of feedback. For example, Lambert and colleagues have developed
clinical support tools (CSTs) that guide therapists in deciding how to proceed with, or modify, treatment if their client is not-on-track. The use of CSTs augmented the gains made from providing feedback alone (Harmon et al., 2007; Whipple et al., 2003). Other researchers have examined ways to encourage therapists to use feedback more frequently (e.g., through staff training initiatives; Willis, Deane, & Coombs, 2009). Kowalyk, Ionita, and Fitzpatrick (2013) are currently developing an online motivational tool that guides therapists in selecting monitoring tools to suit their practice, and incorporating monitoring and feedback into routine therapy. This tool would be helpful for therapists who are new to monitoring, are currently implementing monitoring and feedback systems, or who had previously ceased implementation of these systems due to challenges encountered or lack of success.

The study of monitoring and feedback interventions has enabled researchers to move from evaluating the effectiveness of psychological treatments at the level of the average client (treatment-focused research) to evaluating effectiveness for a particular individual (patient-focused research). Research questions paving the way forward are evolving from “Does feedback work?” to more in-depth investigations of how feedback works and how feedback can be incorporated into routine practice. The aforementioned research initiatives approached these questions by developing methods of enhancing the feedback process (such as introducing clinical support tools) and for facilitating the uptake of these interventions by therapists (i.e., motivational training tools).

The current research program outlined in the present thesis adopted an alternative approach by attempting to build a stronger theoretical understanding of feedback mechanisms and factors that influence feedback response. At present, little is known about how feedback works in a clinical setting and how therapists are using
the feedback to support treatment practices (De Jong et al., 2012; Newnham & Page, 2007). Additionally, Shimokawa et al. (2010) observed that providing feedback may enhance outcomes for some clients but inhibit “outcome enhancement” for others, suggesting potential underlying mechanisms that influence these feedback effects. With limited theoretical grounding to provide explanations for why clinical feedback works, our ability to generalise findings from patient-focused research to other settings and samples is hindered. We propose that a clearer theoretical framework can help to educate therapists and guide further development of clinical feedback applications.

At the outset of this investigation, we note that the effect sizes yielded in previous feedback interventions have been relatively small ($0.21 \geq d \geq 0.09$; Knaup, Koesters, Schoefer, Becker, & Puschner, 2009; Lambert, Whipple, et al., 2001; Sapyta et al., 2005). These modest effects raise the question of the size of benefits that might be expected from further innovations and developments that enhance feedback. Indeed, the benefits reaped from feedback interventions appear to be more clinically meaningful at the level of individual clients (as opposed to the overall group of clients). In their mega-analysis of six feedback trials ($N = 6151$ clients), Shimokawa and colleagues (2010) found that clients in the feedback intervention conditions were significantly less likely to deteriorate ($OR = 0.76$), and were significantly more likely to achieve clinically significant improvement ($OR = 1.38$). When analyses were limited to clients who were not-on-track, risk of deterioration was almost halved and the likelihood of clinically significant improvement was approximately doubled, highlighting the clinical utility of feedback and its supplementary innovations. Thus, in keeping with the principles of patient-focused
research, the motivations in the current thesis are geared towards further developments involving the individual client and their therapist.

Patient-focused research has the potential to bring us closer to identifying some answers to Paul’s (1967; p. 111) question of “What treatment, by whom, is most effective for this individual, with that specific problem, and under which set of circumstances?” Fitting this within the context of feedback research, the guiding question within this thesis was “Which clients, with which specific problems, and under which set of circumstances, will respond better (or worse) to progress feedback?” Gaining an understanding of the intricate mechanisms of feedback at the level of the individual will enable researchers and therapists to better specify how feedback can be individually tailored to optimise the benefits for each client.

**What do We Know about Feedback and How it Works Clinically?**

Feedback interventions have demonstrable incremental benefits over standard clinical practice, particularly when clients are not-on-track. These benefits are important because despite the availability of evidence-based treatments, as many as 60% of clients may leave treatment with little measureable improvement (Hansen, Lambert, & Forman, 2002). The outcomes are even poorer for approximately five to 10% of clients, who are likely to deteriorate significantly over the course of therapy (Lambert & Ogles, 2004).

**Feedback Augments Information Available to Therapists**

In the absence of progress monitoring, studies have observed that therapists are not always accurate in identifying clients who are not doing well (Hannan et al., 2005; Hatfield, McCullough, Frantz, & Krieger, 2010). They also tend to overestimate their effectiveness with delivering psychotherapy (Walfish, McAlister, O'Donnell, & Lambert, 2012). Similar effects have been observed in group
psychotherapy, with under-estimates of deterioration rates and inaccurate predictions of how clients perceived the therapeutic relationship within the group (Chapman et al., 2012). Schulte and Eifert (2002) also found that therapists typically modified their treatment within session when they perceived a potential failure or therapeutic rupture, but these changes were often made prematurely, too frequently, or sometimes for the wrong reasons. They posited that therapists’ emotional reactions towards clients are more likely to influence clinical judgment when their cognitive capacity is stretched by professional demands and time pressure. These findings highlight that therapists are equally susceptible to the effects of cognitive traps and biases that affect all humans (Croskerry, 2003; Murdock, Edwards, & Murdock, 2010). While this may normalise errors in clinical decision-making, such errors may have costly implications for clients and their well-being. Subsequently, part of the rationale behind monitoring and feedback interventions is that they provide therapists with empirical information about their client’s progress, over and above the information they derive from judgment and experience alone (Hatfield & Ogles, 2006).

The importance of seeking extra “data” to that typically available to therapists is further emphasised when prediction accuracy is compared between clinical methods (i.e., predictions based on interview information and observation) and statistical methods (i.e., predictions based on algorithms and formal assessment data). Statistical methods of prediction have consistently shown greater accuracy over clinical methods (Ægisdóttir et al., 2006; Grove & Meehl, 1996; Grove, Zald, Lebow, Snitz, & Nelson, 2000). As prefaced at the beginning of this chapter, the inaccuracies in therapists’ judgment when relying on informal “feedback”, and the improvements in accuracy using statistical methods, provide a more compelling
argument for the use of formal feedback in clinical practice. Integrating information gained from monitoring measures into therapists’ clinical judgments about their clients can facilitate more accurate treatment decisions, particularly when responding to potential treatment failure.

**Feedback Facilitates Therapist-client Communication**

Apart from providing therapists with additional information, feedback seems to be useful in facilitating communication between therapists and their clients (Carlier et al., 2012; Sundet, 2012; Unsworth, Cowie, & Green, 2012). In a qualitative analysis of therapists’ perspectives toward using feedback (Sundet, 2012), therapists expressed that feedback supported conversations with clients about their progress and their experience of therapy. They also reported that building therapeutic conversations around the feedback increased collaborative decision-making with clients regarding changes to the treatment plan, and helped to maintain focus on the therapeutic goals.

**Challenges with Implementation**

The present thesis has reviewed evidence for the effectiveness of feedback interventions in identifying and responding efficiently to clients who are not-on-track, but a practical problem exists in the transportation of these research findings into clinical practice. This apparent gap between the production and consumption of clinical research has been coined the “scientist-practitioner gap”. Essentially, the scientist-practitioner gap captures a breakdown in the integration of evidence-based practice with practice-based evidence, both recognised as key ingredients for best practice (Kazdin, 2008). The barriers to uptake of evidence-based practices in mental healthcare are well-documented (Michie et al., 2007; Pagoto et al., 2007) and similar concerns have been echoed about incorporating monitoring and feedback into
While therapists may be able to identify the clinical benefits of using feedback, not all therapists use feedback even when it is readily available. Approximately 46% of therapists in a randomised controlled trial reported using the feedback they were given, equating to 57% of clients within the study (De Jong et al., 2012). In a routine youth mental health service setting, one-third of therapists did not view any of the provided feedback (Bickman et al., 2011). Additionally, therapists were found to use clinical support tools for only 40.1% of their not-on-track clients, though therapists partly attributed this to clients not filling out the clinical support tool questionnaires (Whipple et al., 2003). This under-utilisation of feedback perhaps reflects an interaction between therapist and client attitudes towards the exercise.

Fortunately, we are starting to gain insight into how feedback impacts on therapist practice, and how therapist characteristics influence the use of feedback. De Jong et al. (2012) observed that therapists differed in their self-reported levels of commitment to feedback use, with greater commitment predicting greater use of feedback. However, the study also found that therapists who reported greater commitment and then used the feedback had clients who showed a slower rate of change. A possible explanation for this is that therapists may respond to the feedback by spending more time with clients who veer off-track. The factors contributing to these observations are unclear, and require further investigation if feedback interventions are to be implemented routinely. This knowledge may also better equip organisations and therapists to address the barriers and introduce processes that promote effective feedback use.
General Introduction: “How are we doing?”

What these studies have drawn to our attention is the lack of clinically-relevant theories to guide further application of feedback interventions. If we do not have sufficient knowledge about how feedback works clinically, we will not be able to optimise its effectiveness in therapy.

The Necessity of Clinical Theories of Feedback

Currently, it is unclear through what mechanisms feedback operates and what makes it more effective under certain circumstances in therapy. As seen from various feedback studies, there is no fixed way of feeding progress information back to therapists and clients, and the way that therapists use feedback has not been closely monitored (Harmon et al., 2007; Shimokawa et al., 2010). From the wider psychology literature, organisational and educational research has identified a multitude of factors that influence feedback use, including but not limited to feedback source, feedback valence, and characteristics of the feedback recipient (e.g., Coe, 1998; Kluger & DeNisi, 1996). Research has also revealed that changes in cognitive and/or affective processes (e.g., beliefs about performance capabilities; expectations of future performance; motivation; emotional states) may be a mechanism by which providing feedback influences task outcomes (Baumeister & Tice, 1985; Ilgen & Davis, 2000; Jussim, Yen, & Aiello, 1995; McColskey & Leary, 1985). From these findings, it appears that it is not only how feedback is presented, but also how feedback is received, that underlies variations in how individuals respond to feedback. The same principle would ostensibly apply to clinical feedback.

Effective feedback delivery requires an understanding about how different types of feedback affect different individuals, within the context of psychological treatment. While several studies have begun to explore therapist factors (e.g., De Jong et al., 2012; Sundet, 2012), the current thesis suggests that feedback processes,
like therapy processes, represent a complex dynamic interplay between therapist, client, therapy, and feedback presentation factors. The present thesis initiates a preliminary exploration into client and therapist factors that might be influential in the use and impact of feedback in psychotherapy. In previous studies, clients have either not received feedback (Lambert, Whipple, et al., 2001; Lambert et al., 2002; Whipple et al., 2003), or have been treated as “passive recipients” of feedback. As such, little is known about the variability in client responses to feedback about their progress. Given the quantitative and qualitative evidence available to support feedback delivered to both the therapist and client as an effective intervention (Shimokawa et al., 2010; Sundet, 2012), inclusion of the client in this exploration seems warranted.

Findings from these initial investigations may contribute to the development of a rudimentary theoretical framework for clinical feedback. Having a theoretical model for clinical feedback provides a solid foundation with which to make recommendations for clinical feedback delivery, and ground future clinical feedback practices. However, this theoretical endeavour also comes with a few challenges, and efforts to address them within the thesis are acknowledged from the outset.

**Addressing Challenges to Theoretical and Practical Developments**

There are few well-established theories of feedback, and even scarcer information on feedback in clinical settings. An extremely wide range of variables (feedback recipient, feedback source, feedback valence, cognitive and affective variables, etc.) have been investigated within other fields of study but it would not be feasible to examine all of these factors within a clinical setting. To ensure that the selected variables can lend themselves to the design and implementation of effective feedback interventions, it is imperative that variables selected for investigation have
empirically-demonstrated importance in explaining the relationship between feedback, individuals, and outcomes (Haynes & O’Brien, 1990). Interventions are typically more effective in eliciting desired outcomes if they involve or directly target causal determinants; therefore, selected variables would also be more useful if they have been shown to cause (or influence) changes to outcomes after feedback has been provided. Thirdly, feedback variables that can be controlled by therapists and/or clients (e.g., varying the visual presentation of feedback; modifying the standards used to compare client progress) can allow for the delivery of individualised clinical feedback. Most of the variables identified within this thesis will be linked with an evidence base that emphasises their important influences within feedback interventions. Some of the variables will be evaluated for their causal role, while others will be controllable, as the experimental chapters aim to demonstrate. Finally, to enhance our understanding of the roles that these variables play within feedback interventions, the current thesis explores novel and creative methods of investigation to accelerate and supplement our developing understanding about feedback in clinical practice.

**The Present Research**

An extensive collection of evaluation studies tells us that most psychotherapies are moderately effective, with approximately two-thirds of clients displaying improved or recovered statuses after undergoing treatment (Lambert, 2013a; Schulte & Eifert, 2002). Yet, some clients unfortunately make little improvement or deteriorate. In observing that different active psychotherapies tended to be equally effective when compared with each other, Luborsky et al. (2002) proposed that researchers should dedicate more resources into examining the important mediating and moderating variables of effective psychotherapy (i.e., how
and why does psychotherapy work?). Cuijpers, Van Straten, Bohlmeijer, Hollon, and Andersson (2010) echoed these ideas and identified treatment matching (i.e., which type of client best matches which type of treatment) as the next step in psychotherapy effectiveness research. The same ideas can be applied to research inquiries about feedback effectiveness. It is currently known that feedback is effective in improving outcomes for some clients, but not for all. Given that feedback is a potentially powerful tool, determining the conditions under which feedback can be matched to the client and therapist’s needs may allow therapists to harness the effectiveness of feedback and facilitate treatment decisions that ultimately benefit the client. To this end, the aims of the present thesis are to delineate some of the theoretical underpinnings of clinical feedback mechanisms and generate practical recommendations for feedback delivery.

Our present review of the existing feedback literature provides some building blocks with which to assemble this proposed theoretical framework. First, it seems essential for any theoretical account of feedback to acknowledge that outcomes from feedback interventions are influenced by interactions between feedback variables and individual-difference characteristics (Kluger & DeNisi, 1996). This will involve a study of moderators of feedback response. Second, between receiving feedback and responding to the feedback, there is likely to be an intermediary response that involves the individual’s internal processing of the feedback information, which then regulates external behaviours. This cognitive and affective processing of feedback may elucidate some mechanisms, or mediators, of feedback-induced change. Based on these two points, the investigations within this thesis set out to identify potential moderators (feedback and individual-differences) and mediators (internal processes) that drive change within the clinical feedback context.
Fresh Perspectives on Experimental & Applied Research Methodologies

The evolution of psychotherapy research has produced increasingly sophisticated methods for evaluating the efficacy and effectiveness of psychological treatments as well as clearer guidelines for what constitutes “good evidence” of treatment effectiveness. Previous debates between advocates of randomised controlled trials (the “gold standard” of treatment evaluation; Westen, Novotny, & Thompson-Brenner, 2004) versus naturalistic effectiveness studies have noted the trade-off between internal and external validity of the two methods. These debates, however, are now giving way to emerging views of these methods as complementary approaches to the same question (Castonguay, Barkham, Lutz, & McAleavey, 2013; Grabe, Ward, & Hyde, 2008).

Correspondingly, patient-focused research has employed various methodologies as a way of seeking a rapprochement between previously “competing” research methodologies. Largely absent in the field of patient-focused research however, is the traditional experimental method. This is perhaps not surprising, as the limitations of laboratory-based experimental studies are well-recognised in terms of their lack of ecological validity and their emphasis on homogeneity (i.e., controlled experiments). Particularly where analogue samples such as undergraduate students are used, experimental studies limit generalisability of findings to real-world clinical practice (Peterson, 2001). However, the current thesis aimed to demonstrate that experimental studies have a role within the suite of patient-focused research methodologies, and can contribute to developing a more sophisticated understanding of processes underlying clinical phenomena.

The notion of complementing findings derived from efficacy and effectiveness studies with those gained from experimental studies is driven by
Cronbach’s (1957) early push for the unification of previously parallel experimental and correlational disciplines of psychology (where the principles behind clinical trials resemble the correlational method). Cronbach suggested that a unified approach would not only enable us to study treatment effects and individual differences, but also the interactions between them. Through this, “we can find for each individual the treatment to which he can most easily adapt” (p. 679).

Borrowing from this ideology, contemporary clinical research may benefit from promoting a synergy that arises from using these different research methodologies. That is, knowledge gained from naturalistic observations (e.g., effectiveness studies), randomised controlled trials, and lab-based experimental studies should feed into each other. Convergence of findings between these different methodologies increases confidence in the phenomena observed. Divergence of findings is equally interesting and valuable. Rather than dismissing divergent findings as flawed methodology, such divergence may signal that a key mechanism differs in expression between the lab and the real-world. The current thesis aspires to demonstrate such a complementary approach for clinical research. Ultimately, the evaluation of a clinical feedback theory and generation of practical clinical recommendations will require a convergence of evidence, and we propose that both lab-based (experimental) and clinical trials combined can address these issues.

Chapter Outlines

The overarching aims of this thesis were organised into three steps: 1) to understand some of the individual differences in responses to feedback from both the client’s and therapist’s perspectives; 2) through this knowledge, build a theoretical framework of feedback mechanisms and factors that influence feedback response, and 3) provide preliminary clinical recommendations for how to deliver feedback to
clients and therapists. In line with unifying parallel approaches to maximise understanding, both experimental and applied methods of investigation were employed. To place these steps into context, the remainder of this thesis can be summarised as follows.

Chapter 1 explored the use and impact of feedback from a “therapist” perspective, adopting a computer-based decision-making task as an experimental analogue for clinical decision-making. We aimed to investigate whether presenting additional outcomes feedback can improve decision-making on the computer task, and if so, what features of the task and/or individual might influence the use and impact of feedback. On the basis of this research it was concluded that providing feedback can help to improve decision-making accuracy, but that several variables relating to the feedback itself, feedback recipient, and task context may impact on the extent to which the feedback is used. Some of these variables serve as barriers to feedback use, while others promote and facilitate feedback use. The complex interactions between these variables thus provide a possible account of why there are still gaps in feedback use despite its value for decision-making.

Chapter 2 continued the experimental approach used in Chapter 1, but shifted the focus to a “client” perspective of feedback. An experimental task was used to examine how individuals reacted to experimentally-determined feedback at two levels: actual performance and perceptions of performance. Manipulation of variables also allowed us to study the effects of varying feedback valence and presenting comparative norms. This research will support the conclusion that style of feedback presentation, specifically the positive or negative progress conveyed by the feedback and whether normative comparisons were made, can affect performance or perceptions of performance. However, this relationship between feedback...
presentation and outcomes was not moderated by individual-difference variables such as self-esteem and locus of control. Additionally, cognitive-affective reactions such as changes in one’s confidence may mediate the effect of feedback provision on perceptions of performance.

Self-esteem emerged from the research outlined in Chapter 1 as an important individual-difference variable that moderated responses to feedback. Building on the findings of the experimental studies, Chapter 3 examined clients’ responses to feedback within a naturalistic treatment setting, focusing on self-esteem as a potential moderator of treatment outcomes. On the basis of the research in Chapter 3 it is argued that client variables are an important consideration in the delivery of feedback interventions, as self-esteem was found to moderate the effect of feedback for clients who were not-on-track. This finding supports the need for individually-tailored feedback to clients and therapists in order to enhance therapy outcomes.

In Chapter 4, findings from the previous chapters were integrated to evaluate trainee therapists’ perceptions towards different feedback presentation styles. The findings indicated that therapists perceived feedback to have different effects on clients who were on-track versus not-on-track, although this did not appear to be a direct consequence of individual differences between therapists’ predispositions towards feedback. Instead, this difference in perceptions may partially be attributed to the feedback presentation style.

Drawing together the findings from the individual chapters, the thesis aims to demonstrate how a range of factors relating to the way feedback is presented, and to the way feedback is interpreted by the recipient, interact to influence individuals’ responses to feedback. These factors, when synthesised into a cohesive theoretical
General Introduction: “How are we doing?”

framework, may provide researchers and therapists with a clearer template for informing the design and implementation of effective clinical feedback systems.
SECTION ONE

Identifying factors and conditions that influence the use of outcomes feedback
- Chapter 1 -

Development and application of a novel computer task to investigate how feedback influences decision-making

The use of feedback about treatment outcomes is valuable for therapists’ learning and shaping more effective practice (MacDonald & Mellor-Clark, 2014; Sapyta, Riemer, & Bickman, 2005). When therapists trial an evidence-based therapy that is new to their practice, feedback on effectiveness can inform them about whether to adopt the therapy in future practice (Sapyta et al., 2005). At the micro-level, such feedback can also enhance therapists’ judgments. In the absence of formal feedback, therapists under-estimate client deterioration (Hannan et al., 2005); over-estimate their success with psychotherapy (Walfish, McAlister, O’Donnell, & Lambert, 2012); and make treatment decisions that sometimes contributed to negative outcomes (Schulte & Eifert, 2002). Thus, therapists appear susceptible to the same inaccuracies in judgment arising from heuristics and other cognitive biases that are common to all people (Croskerry, 2003). Furthermore, statistical predictions derived from formal assessment data are generally more accurate, or equivalent to, clinical judgment alone, further highlighting the impact of cognitive biases on clinical decision-making (Ægisdóttir et al., 2006; Grove & Meehl, 1996; Grove, Zald, Lebow, Snitz, & Nelson, 2000; Meehl, 1954).

Clinical feedback systems are designed to supplement therapists’ decision-making, rather than replace therapists’ experience and expertise (Hatfield, McCullough, Frantz, & Krieger, 2010; Kazdin, 2008; Lambert, Harmon, Slade, Whipple, & Hawkins, 2005). Critics argue that therapists are better at accommodating individual differences between clients and considering the impact of contextual variables (Meehl, 1954; Westen & Weinberger, 2005). Clinical interviews
can also detect critical issues that questionnaires fail to capture (Kazdin, 2008). To the extent that these counter-arguments are valid, the ideal practice appears to be a rapprochement, whereby both statistical methods and therapists’ knowledge and experience contribute toward effective decision-making (Dana & Thomas, 2006).

Despite the value of feedback, therapists’ reported use of standardised outcome measures to evaluate treatment ranged from as low as 8-26% (routine clinical practice; Gilbody, House, & Sheldon, 2002) to 63% (within a graduate student sample; Waltman, Williams, & Christiansen, 2013). Consequently, even if therapists have implemented evidence-based treatments, they rarely conduct an objective evaluation of treatment outcome, limiting the ability to demonstrate that the outcome was a good one. This state of practice does not align with current American Psychological Association (APA) guidelines, which define evidence-based practice as the “integration of the best available research with clinical expertise in the context of patient characteristics, culture, and preferences” (APA Presidential Task Force on Evidence-based Practice, 2006; p. 273). While the APA guidelines provide a great launching point for shaping best practice for the field, the specific modes and methods for “integration” have largely been left unspecified. This leaves therapists with little direction and guidance as to what constitutes “best available research”, where the boundaries of their clinical expertise lie, and how these two sources of information should be integrated. Using a feedback-based theory of therapists’ behaviour change, the present chapter attempts to specify how such integration might occur with the implementation of feedback interventions.

**Contextualized Feedback Intervention Theory**

There are a few possible reasons for the slow uptake of feedback in therapists’ routine practice. First, therapists may vary in their perceptions of how
useful or credible the feedback is. For feedback to have an effect on practice, therapists not only need to attend to the feedback, but also accept it (Sapyta et al., 2005). Second, if therapists perceive treatment monitoring to be imposed on them (e.g., by their organisation), they may have little intrinsic motivation to use the feedback. Intuitively, therapists who assume internal responsibility for using the feedback would be more likely to implement it within their practice. Therapists who report greater commitment to using feedback do indeed show greater levels of actual feedback use (De Jong, Van Sluis, Nugter, Heiser, & Spinhoven, 2012). Thus, it is highly likely that therapists who recognise how feedback enhances their practice would use the feedback more frequently.

These explanations are features described within the Contextualized Feedback Intervention Theory (CFIT; Riemer, Rosof-Williams, & Bickman, 2005). The CFIT formulates how therapists who are committed to evidence-based practice regulate their actions. As illustrated in Figure 1.1, when a discrepancy between a desired goal state (i.e., enhanced treatment outcomes following successful implementation of an evidence-based treatment) and the current state (i.e., poorer treatment outcomes) arises, the theory posits that providing feedback of this discrepancy to the therapist will create cognitive dissonance. This dissonance motivates the therapist to reduce the discrepancy by improving the current treatment or switching to a more effective treatment (Riemer et al., 2005).

Several assumptions underpinning CFIT govern whether behaviour change eventually occurs (Riemer et al., 2005). First, the therapist needs to attend to and accept the feedback (versus reject the information). However, acceptance may not lead to behaviour change. Instead, the theory further states that therapists must: 1) maintain their commitment to the goal; 2) believe that they have some control over
Feedback and Decision-making

the factors that led to the discrepancy (i.e., make an internal attribution); and 3) accept personal responsibility for reducing this discrepancy. These processes are contingent on individual differences between therapists, such as their self-efficacy, and the perceived impact of feedback on their self-concept.

![CFIT path to clinician behaviour change](from Riemer et al., 2005)

*Figure 1.1. CFIT path to clinician behaviour change (from Riemer et al., 2005).*

The experiments described in this chapter were designed to address the two proposed explanations - individual differences in, and internal responsibility for, feedback use - thus providing an empirical evaluation of the CFIT. Before we proceed with these investigations, we return to another feature that has not been elaborated on within CFIT, but that we believe is important for influencing therapists’ use of feedback. Specifically, therapists who recognise how feedback is useful to their practice may be more likely to use the feedback. This recognition may arise from past experience with using feedback, or for new users, a sound knowledge
base about effectiveness and feedback mechanisms. At present, there is a lack of clear understanding as to how clinical feedback works (i.e., the mechanisms), and there are few empirical studies of the impact of feedback on therapists’ behaviours (e.g., decision-making). Providing education to therapists about the role that feedback plays in therapists’ practice may enhance attitudes towards feedback and encourage its routine use.

**Understanding How Clinical Feedback Works**

Sapyta et al. (2005) suggested that providing feedback augments the information available to therapists when making clinical decisions, but studies on the effects of feedback provision on clinical decision-making are sparse (however, see Haderlie, 2011; Hatfield & Ogles, 2006; Waltman et al., 2013 for empirical investigations of how therapists make treatment decisions when provided with outcomes feedback). Support for the information function of feedback has derived largely from cognitive and meta-cognitive experiments. These studies show that feedback assists learning by minimising repetition of errors (Butler, Karpicke, & Roediger, 2008) and improving retention of correct responses, particularly when responses are initially made with low confidence (Butler et al., 2008; González-Vallejo & Bonham, 2007; Webb, Stock, & McCarthy, 1994).

However, the proposed information function has not been empirically tested in settings that use clinical feedback. Of specific interest is how the additional information assists therapists’ decision-making. A thorough understanding of the functions and mechanisms of clinical feedback may help to promote the uptake of feedback into clinical practice. This knowledge would inform the development of practical guidelines to assist therapists in using feedback within their work with clients, thus contributing to value-added psychotherapeutic practice. Isolating the
functions and mechanisms is only one aspect, and informing therapists of how feedback enhances their practice may not be sufficient to change their feedback behaviours. Subsequently, the CFIT provides us with a framework with which to incorporate this knowledge into practice to guide feedback implementation – this will become clearer in Experiment 2.

**Experimental Methods for Testing Potential Feedback Mechanisms**

Theoretical investigation of potential clinical feedback mechanisms is important as directly targeting the causal mechanism enables the positive effects of feedback to be maximised (Michie, Johnston, Francis, Hardeman, & Eccles, 2008). The laboratory-based experimental study is an attractive methodological option for the purpose of evaluating posited feedback mechanisms. While the limitations in generalisability and external validity resulting from testing analogue samples under homogeneous controlled conditions are recognised, laboratory experiments allow us to manipulate elements of a clinical theory or phenomenon, permitting causal inferences (Shadish, Cook, & Campbell, 2002). The current chapter thus proposes that laboratory-based experimental studies can yield valuable, clinically-relevant findings that complement clinical trials. Indeed, rather than adopting a singular methodological approach, a convergence of evidence between lab-based and clinical trials will help contribute to a sound understanding of important clinical phenomena.

Accordingly, the present chapter describes two studies outlining the development and application of a novel computer task as an experimental analogue for therapist decision-making. The aim of Experiment 1 was to investigate whether the computer task could model decision-making, thus permitting the study of whether feedback improves decision-making. A valid experimental analogue also provides opportunities to test theories of feedback such as the CFIT, which may
assist in elucidating factors that promote or discourage use of feedback. Experiment 2 demonstrated a theoretical application of the decision-making task, and explored possible directions for future experimental research.

**Experiment 1**

For evaluation of the novel computer task, we were specifically interested in the effect of providing outcomes feedback on judgment accuracy. The computer task presented participants with a series of brief vignettes of clients they had “treated” using two different therapies. This was followed by clear and simple feedback about treatment outcomes for each client (less-feedback condition) versus additional feedback on the cumulative success rates of the two treatments (more-feedback condition). Participants were then asked to pick the more effective treatment, and estimate the success rate of their chosen treatment. The task was designed in this way to simplify the judgment process as much as possible, so that the effects of feedback could be investigated without the complexities that beset research of judgment processes in situ.

Experiment 1 thus sought to use the task to test Sapyta and colleagues’ (2005) proposition that feedback augments the amount of information available to individuals when making decisions about their clinical practice. It was hypothesised that providing feedback would increase decision-making accuracy. That is, a greater proportion of participants in the more-feedback condition would choose the more effective treatment compared to participants in the less-feedback condition. Based on our pilot study, we found that the binary outcome index of selecting the more effective treatment provided a limited measure of accuracy. Therefore, participants in this study were also asked to estimate the success rate of their chosen treatment. If participants were attending to and made full use of the available feedback
information, then it was predicted that participants in the more-feedback condition who received information about cumulative success rates would provide more accurate estimates of treatment success than participants in the less-feedback condition.

**Method**

**Participants**

One hundred and seventy-three undergraduate psychology students participated in this experiment as part of a teaching activity for a unit on advanced statistical methods. Twenty participants chose not to provide details on their age and gender. For the remaining 153 participants, their ages ranged from 18 to 43 years ($M = 21.4$, $SD = 3.8$), and 121 (79%) were female. Institutional ethics approval was granted for the study, and informed consent was obtained from all participants at the beginning of the unit.

**Materials**

**Computer task.** The computer task was programmed through BBC Basic 3.0 for Windows. The first screen of the program provided participants with task instructions, asking each participant to imagine that he/she was a clinical psychologist. Participants were told that they would view 40 short vignettes about clients they had “treated”, after which they would be asked to answer two questions to assess how good they were at learning from clients. The vignettes were presented sequentially and in randomised order. Each vignette contained a description of the client’s symptoms and clinical presentation, number of sessions attended, the treatment administered (cognitive therapy for 20 vignettes and psychoanalysis for another 20 vignettes), and its outcome (success or failure). The program would
randomly sample these pieces of information to increase variation between the clients presented. An example vignette appeared as follows:

Brett is 26 and is depressed.

He attended 12 sessions with you and your rapport with him was strong.

You treated this client using Cognitive Therapy.

The outcome of treatment was a success.

Participants then moved onto the next vignette by pressing the space bar. For participants in the more-feedback condition, they were shown an additional screen stating the cumulative success of the treatment (e.g. “Your cumulative success using Cognitive Therapy with clients so far is: 60%”) before moving onto the next vignette. The task was self-paced, with participants controlling the amount of time they viewed each vignette. At the end of the 40 vignettes, participants were asked to choose the more effective of the two treatments (cognitive therapy or psychoanalysis). The next screen prompted participants to estimate the proportion of clients they expected their chosen treatment to treat successfully, which enabled comparison to the actual cumulative success rates assigned to each condition. The rating scale ranged from one (“no clients”) to nine (“all clients”), with “some clients”, “half of the clients”, and “most clients” as intermediate anchor points. Treatment choice and estimated success rates were both recorded as dependent variables.

_Treatment labels._ “Cognitive therapy” and “psychoanalysis” were selected as the two treatment labels as they are two distinct treatments that participants (i.e.,
undergraduate students) would be familiar with, thus increasing face validity. We expected that participants may bring pre-existing beliefs about the two treatments to the task, but preliminary analyses were conducted to verify that these beliefs did not have a systematic effect on the results.

**Manipulation of treatment success.** Einhorn and Hogarth (1978) described that individuals learn by receiving information about the outcomes of their judgments, which are often represented categorically (i.e., success vs. failure) rather than probabilistically in memory. Such categorical outcomes can be misleading as base rates are often ignored when making judgments. For example, therapists initially predicted that only three out of 550 clients receiving therapy at a counseling centre would deteriorate, even when they knew the baseline deteriorate rate was 8% within their practice. In contrast to their predictions, final outcomes data indicated that 40 clients had deteriorated (Hannan et al., 2005). Given this discrepancy, the current study presented additional probabilistic feedback in the form of cumulative success rates for each treatment. The cumulative success rate was calculated by taking the number of treatment successes divided by the number of clients treated with that particular therapy, expressed as a percentage. Cumulative success rates for the two treatments were set at 40% and 60%. That is, by the end of the 40 trials, one treatment would produce successful outcomes for 40% of the clients treated while the other treatment would produce successful outcomes for 60% of the clients treated (see Figure 1.2 for an example).

These rates were determined by effect sizes derived from clinical trials. Luborsky et al. (2002) found an average Cohen’s $d$ effect size of 0.2, equivalent to a Pearson’s $r$ correlation of .1, when effective psychotherapies were compared with each other. Applying the Binomial Effect Size Display (BESD; Rosenthal & Rubin,
produced a 10% difference in effectiveness between two active psychotherapies, i.e., an increase in success rates from 45% to 55%. The current study doubled this difference to obtain the 40 and 60% success rates. The more effective treatment was also manipulated between subjects so that for half of the participants, cognitive therapy was more effective, and vice-versa.

Figure 1.2: An example of the cumulative success rates (%) for the two treatments in the psychoanalysis condition (i.e., where psychoanalysis is more effective). Note: The first client for each treatment is not shown because the cumulative success rate will either be 0% or 100%. The figure only depicts the pattern of success rates for clients 2 to 20. By the 40th trial, the cumulative success rates for the two treatments were constrained so that they would settle at 40% and 60% for all participants.

Procedure

The task was administered in a classroom setting. There were approximately 20 to 25 students in each class, and students were randomly assigned to one of the
four conditions. Participants were instructed to complete the task at their own pace, and then enter their responses into a database which was used for the analyses.

**Experimental Design**

The resulting experimental design was a $2 \times 2$ between-subjects design, with feedback (less-feedback vs. more-feedback), and treatment type (cognitive therapy vs. psychoanalysis) as the two between-subjects factors. Dependent variables of interest were accuracy of treatment choice and estimated success of chosen treatment. Accuracy of treatment choice was coded dichotomously: “accurate” (1) represented cases where participants correctly selected the more effective treatment, and “inaccurate” (0) represented cases where participants selected the less effective treatment.

**Pilot Testing**

The experimental paradigm was pilot-tested on an independent sample of 48 undergraduate psychology students who participated for partial course credit. Results indicated that a higher proportion of participants chose the more effective treatment when they received more feedback (96%) compared to when they received less feedback (71%), $\chi^2(1) = 10.80, p = .001$. Participants also reported feeling more confident in their treatment choice if they had received more feedback than if they had not, $F(1, 46) = 28.24, p < .001, \eta_p^2 = .38$. The findings were in the expected direction, providing support for the validity of the task as an experimental analogue for feedback-informed decision-making.

**Results**

Two outliers were identified on the estimated success variable (> 3SD from the mean) and removed from further analyses. The remaining dataset comprised of 171 participants.
The number of accurate and inaccurate responses in each of the four experimental conditions is presented in Table 1.1. A chi-squared test was first conducted to investigate whether the two treatment labels differentially affected participants’ choice of treatment. Rates of accuracy did not differ between the cognitive therapy (60%) and psychoanalysis (59.3%) conditions, \( \chi^2(1) = .01, p = .93 \). Thus, treatment choice was not influenced by the treatment labels.

**Effect of Feedback on Decision-making Accuracy**

Decision-making accuracy was significantly higher in the more-feedback condition (67.7%) than the less-feedback condition (50%), \( \chi^2(1) = 5.55, p = .02 \).

Table 1.1.

Count of inaccurate (i.e., less effective) and accurate (i.e., more effective) treatment choices in each condition, with corresponding rates of accuracy (%).

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Psychoanalysis Less Feedback ((n = 41))</th>
<th>More Feedback ((n = 50))</th>
<th>Cognitive Therapy Less Feedback ((n = 37))</th>
<th>More Feedback ((n = 43))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inaccurate</td>
<td>20 (49%)</td>
<td>17 (34%)</td>
<td>19 (51%)</td>
<td>13 (30%)</td>
</tr>
<tr>
<td>Accurate</td>
<td>21 (51%)</td>
<td>33 (66%)</td>
<td>18 (49%)</td>
<td>30 (70%)</td>
</tr>
</tbody>
</table>

**Effect of Feedback and Treatment Type on Estimated Success Rates**

Descriptive statistics for estimated success rates for the chosen treatment are presented in Table 1.2. Given that the success rate for the more effective treatment was set at 60%, estimates of success between successfully treating “half of the clients” (five) and “most clients” (seven) were relatively accurate.
Estimated proportion of clients successfully treated by chosen treatment for each condition, rated on a scale from one (“no clients”) to nine (“all clients”).

<table>
<thead>
<tr>
<th></th>
<th>Less Feedback</th>
<th>More Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychoanalysis</td>
<td>5.56 (1.16)</td>
<td>5.58 (0.81)</td>
</tr>
<tr>
<td>Cognitive therapy</td>
<td>5.76 (1.16)</td>
<td>5.91 (0.68)</td>
</tr>
</tbody>
</table>

A 2 × 2 between-subjects ANOVA was conducted to examine the effects of feedback condition and treatment type on estimated success of the chosen treatment. Estimated success rates did not significantly differ between the more- and less-feedback conditions, $F(1, 167) = 0.33, p = .57, \eta_p^2 = .002$, or between the cognitive therapy and psychoanalysis conditions, $F(1, 167) = 3.12, p = .08, \eta_p^2 = .02$. The interaction between feedback and treatment type was also not significant, $F(1, 167) = 0.20, p = .66, \eta_p^2 = .001$.

**Discussion**

The aim of Experiment 1 was to evaluate the utility of a novel computer task as an experimental analogue for studying the effects of providing feedback on decision-making. The hypothesis that providing feedback would increase decision-making accuracy was supported. A greater proportion of participants in the more-feedback condition chose the more effective treatment compared to participants in the less-feedback condition, and the increase in accuracy was independent of the treatment labels used. This finding is consistent with several studies that have established the role of feedback in enhancing performance accuracy across a wide range of tasks (Butler et al., 2008; González-Vallejo & Bonham, 2007; Webb et al., 1994), and extends it to decision-making within a treatment context. The present
finding also provided further support for Sapyta and colleagues’ (2005) proposition that feedback augments the information available to therapists when making clinical decisions, as provision of the additional feedback on cumulative success rates conferred an accuracy advantage onto participants in the more-feedback condition.

However, the results for estimates of success were incongruent with this proposition. Contrary to predictions, estimates of success did not significantly differ between participants who received feedback on cumulative success rates and those who did not. On average, participants estimated that their chosen treatment was effective for half of – to most of the clients, regardless of feedback condition.

The higher accuracy in treatment choice among participants receiving more feedback appeared to reflect participants’ use of the additional feedback. However, this interpretation of greater feedback use did not account for the similar estimates of success between conditions. One possible explanation for the latter finding is that participants in the more-feedback condition may have retained the gist of feedback (i.e., which treatment was more effective), but failed to memorise the specific success rates for each treatment. This explanation is plausible given that individuals generally encode outcome information categorically as discrete successes or failures, rather than probabilistically as percentages of success or failure (Einhorn & Hogarth, 1978).

Alternatively, it is possible that participants in the more-feedback condition did use the feedback to make accurate estimates of the success rates. Given the chance-levels of accuracy in the less-feedback condition, it is unlikely that these participants kept a running tally of the number of successes and failures. Rather, the relatively accurate estimates provided by participants in the less-feedback condition may have resulted from over-confidence. Indeed, over-estimation bias has been
documented across a wide variety of tasks and situations (Croskerry, 2003; Walfish et al., 2012). To provide a more accurate measurement of participants’ estimates of success, the initial scale options (i.e., no clients; some clients; all clients) were replaced with specific percentage intervals (i.e., 45-49%, 50-54%) in Experiment 2. An additional question was included asking participants to rate their confidence in their chosen treatment.

**Generalising to Clinical Practice**

Findings from the present study demonstrated that feedback affected decision-making accuracy in the expected direction (i.e., improved). This result was important for establishing the reliability and validity of the experimental paradigm for studying the effects of providing feedback on treatment-related decision-making.

The computer task developed for the current study pared down several complex elements of clinical practice, leaving the bare bones of feedback. The feedback comprised clear and simple information on the outcome for each client, and additional feedback on the cumulative success rates for each treatment. With only the former information, participants’ judgment accuracy was at chance levels (50%). Within clinical practice, this level of information may be comparable to what therapists receive if they do not collect routine outcomes data from their clients – that is, therapists may only be able to label treatment outcomes for each client as a success or failure, but would not be able to quantify the amount of success or failure for each client and for clients overall. This lack of precision in therapists’ knowledge about treatment effectiveness foreshadows a higher risk for inaccurate (and costly) judgments.

Conversely, provision of additional feedback significantly improved judgment accuracy, demonstrating an important role for feedback in decision-
making. However, a substantial proportion of participants (32%) still chose the less effective treatment despite receiving explicit information about the cumulative success rates for both treatments. This observation, that participants have difficulty correctly identifying the more effective treatment on a simple judgment task, implies that it will be much more challenging to sift through layers of complex information presented within clinical practice. The use of a computer task provides future opportunities to investigate how varying the complexity of feedback (e.g., including distractor information), may affect the use of feedback for decision-making.

A related point to note is that the current experiment presented two treatments of 40% and 60% effectiveness, reflecting a difference that is twice as large as the average difference observed between two treatments in real-world practice (Luborsky et al., 2002). Thus, while it can be expected that participants will be more accurate if treatment success rates were more disparate (e.g., 30% versus 70%), the findings from Experiment 1 demonstrated that the use of feedback may increase sensitivity to smaller differences. This greater sensitivity would likely serve as an advantage to therapists, especially in situations of high pressure or uncertainty.

**Limitations and Directions for Experiment 2**

We return to the initial speculations set forth about why therapists may not use feedback, specifically individual differences in attitudes toward feedback, and internal responsibility for using the feedback. A central limitation of the current study was that participants were told which treatment they used to afford greater experimental control over the feedback provided. This passive participation meant that task outcomes were not a result of participants’ actions, thus potentially minimising the attentional and motivational factors that would otherwise have influenced feedback use. The task was hence modified for Experiment 2 to enable
participants to actively select treatments, and to investigate whether the positive effect of feedback persisted when participants had more active control over treatment choice. Control may be an important factor influencing the use and impact of feedback. Greater control enhances personal responsibility (Frese, Garst, & Fay, 2007), and as described earlier, this sense of control and responsibility have been highlighted within CFIT (Riemer et al., 2005). This facet of the theory will provide the focus of further investigation in Experiment 2.

Another limitation discussed earlier was that the scale options used for the estimated success item limited our ability to specify why participants in both feedback conditions provided similar estimates despite differing in accuracy of treatment choice. In Experiment 2, we replaced the original scale options with specific percentage intervals to achieve better resolution of estimates, and included another question asking participants to rate their confidence in their judgments. Finally, the observation that 32% of participants continued to select the less effective treatment prompted further investigation into whether individual-difference variables might explain the discrepancy in rates of feedback use. Several studies have shown that individuals differ in how they respond to and use feedback based on characteristics such as self-esteem, self-efficacy, locus of control, and feedback propensity (Coe, 1998; De Jong et al., 2012; Kluger & DeNisi, 1996). Experiment 2 explored these variables as potential moderators of the use and impact of feedback.

**Experiment 2**

The findings from Experiment 1 provided some support for the purported feedback function of augmenting the information ordinarily available to therapists within the clinical decision-making process (Hatfield & Ogles, 2006; Sapyta et al., 2005). However, 32.3% of participants who received additional feedback continued
to choose the less effective treatment, indicating that not all participants used the feedback optimally. It further suggested that individual-difference characteristics between participants may moderate their use of feedback. The apparent lack of feedback use also closely reflects the slow uptake of monitoring and feedback in real-world practice (Gilbody et al., 2002; Hatfield & Ogles, 2004; Waltman et al., 2013). Feedback will not be effective unless it is used by therapists, but therapists are unlikely to use feedback effectively unless they know how feedback works. Given its potential value to therapy, a vital next step would be to identify conditions that encourage therapists to integrate feedback into their routine practice.

Returning to the CFIT model, the theory’s inclusion of intra-individual mechanisms of change is crucial because while organisations may promote adoption of specific practices, the ultimate decision and action lies with the individual therapist (Godin, Bélanger-Gravel, Eccles, & Grimshaw, 2008). Further investigation into how this causal agent can be targeted will assist in identifying conditions that promote feedback-approach behaviours. Within the feedback-seeking literature, control has been implicated as conducive to fostering greater personal initiative and a stronger sense of responsibility (Frese et al., 2007), and increasing feedback-seeking efforts in the workplace (Renn & Fedor, 2001). Control, or autonomy, refers to the actual or perceived ability to act with a sense of volition, and is often experienced by the ability to make choices with minimal external pressure (Abraham, 2000; Gagné & Deci, 2005). In the current study, we distinguish situational control (i.e., actual or perceived control that can vary from situation to situation) from an individual’s locus of control. The latter relates to more stable, trait-based perceptions of whether one’s own behaviours are under the control of oneself or others (Craig, Franklin, & Andrews, 1984). Based on previous research,
fostering situational control may provide a useful bridge for promoting feedback-seeking behaviours in clinical practice, and hence warrants further review.

**Situational Control in Clinical Practice**

While extensively examined in organisational settings (Ashford, Blatt, & VandeWalle, 2003; Renn & Fedor, 2001), the role of control is not as well-understood within the healthcare profession. A survey by Elovainio et al. (2000) found that healthcare practitioners who perceived control and autonomy within their work reported more positive attitudes towards clinical guidelines, and subsequently were more likely to report using those guidelines.

Experiment 2 aimed to understand whether and when control is conducive to feedback-seeking, and identify internal factors of the therapist that may interact with these external conditions. Control presented an ideal construct to examine due to its potential relevance to clinical practice, and because it can be experimentally manipulated. Lambert et al. (2005) pointed out that therapists tend to have autonomy over their practice. This autonomy extends to clinical feedback studies, as there has been little specification over whether and how therapists use the feedback (De Jong et al., 2014). Lambert and colleagues (2005) further noted that monitoring clients’ progress (to derive feedback) increases transparency of therapists’ practices, and may subsequently heighten therapists’ perceptions of loss of their autonomy.

While we briefly reviewed instances where control was beneficial for feedback-seeking, Ashford (1988) observed that feedback-seeking may increase stress if the feedback received perpetuates the recipient’s anxieties or increases uncertainty. Additionally, lack of control can promote greater desire for control in the short-term, but in the long-term, this experience can foster learned helplessness and lead to withdrawal from one’s environment (Frese et al., 2007). It appears that
not all individuals thrive under conditions of control, or profit from efforts to gain more control (e.g., Abraham, 2000; Ashford, 1988). As such, it is useful to consider the relationship between situational control and individual-difference variables.

**Control and Individual-Difference Variables**

Research suggests that feedback-seeking behaviours are heavily determined by how individuals evaluate themselves (Ilgen, Fisher, & Taylor, 1979; Judge & Bono, 2001). These self-evaluations may reflect the individual’s self-esteem (global sense of self-worth); self-efficacy (confidence in one’s ability to succeed in situations); or locus of control (extent to which behaviours or events are perceived to be under one’s control; Judge & Bono, 2001). Studies have shown that more positive self-evaluations (i.e., higher self-esteem and self-efficacy, greater internal locus of control) are associated with greater preferences for control (Abraham, 2000) and increased feedback-seeking behaviours (Ashford et al., 2003). These positive self-evaluations purportedly confer onto individuals greater confidence in their ability to harness and use feedback constructively to effect positive changes in their environment (Bono & Colbert, 2005; Renn & Fedor, 2001). In support of this, De Jong et al. (2012) found that when therapists used feedback, client improvement was quicker for therapists with higher compared to lower self-efficacy.

However, the study of core self-evaluations has also yielded some mixed findings. Krenn, Wuerth, and Hergovich (2013) found that only self-esteem, and not core self-evaluations as a whole, significantly moderated the effects of feedback on task performance. The authors suggested that the overall construct may be too diffuse to notice specific effects. Alternatively, global self-esteem may exert more pervasive and detectable effects compared to more specific constructs like self-efficacy or locus of control. Furthermore, feedback-seeking behaviours may be
driven by various motives, such as preferentially attending to feedback that aligns with, or enhances, one’s self-image (Bernichon, Cook, & Brown, 2003; Jussim, Yen, & Aiello, 1995). Individuals generally respond negatively to feedback that may pose a threat to one’s sense of self, leading researchers to recommend providing feedback that directs attention to the task instead (Kluger & DeNisi, 1996).

An investigation into feedback-seeking and feedback use would not be complete without a consideration of feedback propensity. This refers to an individual’s preferences for seeking feedback from others (external feedback propensity) or relying on feedback from oneself (internal feedback propensity; Herold, Parsons, & Rensvold, 1996). Renn and Fedor (2001) found that employees who reported greater external feedback propensity utilised the feedback more to influence their work performance compared to employees with lower external feedback propensity. Conversely, De Jong et al. (2012) did not find significant associations between internal or external feedback propensity and commitment to use feedback, or actual feedback use.

Though the directions of findings appear mixed, the studies collectively suggest that individual differences influence preferences for control and feedback-related behaviours. An understanding of how these individual differences relate to feedback-seeking and use can inform the development of feedback interventions tailored to the individual needs and preferences of therapists (Sapyta et al., 2005).

**Present Study**

Experiment 2 aimed to investigate how situational control and the individual-difference variables of self-efficacy, self-esteem, locus of control and feedback propensity, influence the use and subsequent impact of feedback on decision-making. Situational control was manipulated by allowing participants to choose the
treatment for each client (choice condition – greater control) versus having no choice (no-choice condition – less control). Within clinical practice, these scenarios may be analogous to being able to develop and implement an intervention based on a client’s presentation (greater control), versus strict organisational requirements to adhere to a prescribed treatment manual, or trainee therapists being instructed by supervisors to administer a particular treatment (less control). Given the improvements in accuracy observed in Experiment 1, all participants received the additional feedback on cumulative success rates after each trial. This permitted a singular focus on the effect of situational control on feedback use.

It was first hypothesised that having situational control would increase feedback use. Increased feedback use would be evidenced by participants in the choice condition being more accurate in their treatment selection and in their estimates of success compared to participants in the no-choice condition. That is, having greater control would enhance attention paid to the feedback information and increase the likelihood that the information was used in decision-making. Second, if having situational control increased feedback-seeking and feedback use, then it was expected that participants in the choice condition would be more confident in their treatment choice than participants in the no-choice condition because they would be more secure in the evidence base upon which the decision was founded. Finally, we examined how individual-difference variables interacted with situational control to influence the use and impact of feedback. We predicted that participants with more positive self-evaluations would react more positively (i.e., increased judgment accuracy and confidence) to having situational control.
Method

Participants

One hundred undergraduate psychology students from The University of Western Australia participated in the experiment for partial course credit. There were no inclusion or exclusion criteria, and all participants provided informed consent prior to taking part. Participants’ ages ranged from 17 to 49 years ($M = 19.6$, $SD = 4.90$), and 68% were female.

Materials

Computer task. As in Experiment 1, participants completed the decision-making task comprising 40 client vignettes. A few modifications were made to manipulate situational control between the choice and no-choice conditions. The no-choice condition was identical to the more-feedback condition in Experiment 1, where participants were presented with each vignette and told which treatment they had used (Figure 1.3b). They received feedback on the success or failure for each client, followed by the cumulative success rate for the treatment. The lack of choice over treatments was considered comparable to a lack of situational control.

![Figure 1.3](image)

*Figure 1.3.* Task progression for the a) choice and b) yoked no-choice conditions.
Conversely, participants in the choice condition were presented with the vignette and then asked to choose between administering cognitive therapy or psychoanalysis by pressing a keyboard button (Figure 1.3a). The next screen informed them of whether the treatment was a success or failure, and the following screen informed them of the cumulative success rate for their chosen treatment. Participants then proceeded to the next vignette. For both conditions, participants controlled the pace of the task using a key press. A 500-ms interval preceded each client vignette, and after the final vignette, there was a three-second interval before the task questions were presented.

**Yoked control.** Affording choice to participants meant that success rates could vary widely based on idiosyncratic patterns of choosing treatments. To ensure that any differences in task performance would not be attributable to differences in success rates, a yoked-control design was incorporated into the task. Specifically, the treatments chosen by a participant in the choice condition and the corresponding feedback on treatment outcomes and cumulative success rates were recorded and input as stimuli for the next consecutive participant in the no-choice condition (within the respective treatment condition). Consequently, participants in the no-choice condition viewed the identical order of treatments, treatment outcomes, and cumulative success rates as the participants in the choice condition directly preceding them (Figure 1.3).

**Generation of cumulative success rates.** The multiple permutations of treatment choices that could arise also meant that cumulative success rates could not be pre-determined. To maintain experimental control on the more effective treatment, the task was programmed such that success rates for the more effective treatment would be sampled from a distribution with a mean of 60% (i.e., 60%
chance of a successful outcome for each client, and 40% chance of failure).

Conversely, success rates for the less effective treatment were sampled from a distribution with a mean of 40%. This formula meant that cumulative success rates would settle around 60% and 40% after the 40 trials.

**Task measures.** At the end of the task, all participants were asked to 1) choose the more successful treatment, 2) estimate the success rate of their chosen treatment, and then 3) rate their confidence in their treatment choice. As discussed in Experiment 1, we modified the scale options for the estimated success item from nominal proportions of clients (i.e., no clients; some clients; all clients) to specific percentage intervals. The resulting scale ranged from one to nine with corresponding percentage ranges for each scale value, starting from <35% to >69%, with increments of five per cent for each scale value (i.e., 35-39%, 40-44%, etc.). Participants were asked to type in the scale value corresponding to their estimated percentage range. Novel to Experiment 2, participants were asked to rate their confidence in choosing the more successful treatment on a scale from one (“not confident”) to nine (“very confident”). Additionally, the computer program recorded the actual success rates (%) of each treatment.

**Questionnaires.** Four individual-difference questionnaires were administered to participants. Scores on these questionnaires were tested as potential moderators of the effects of situational control on the aforementioned task measures.

**Locus of Control of Behaviour Scale.** The Locus of Control ofBehaviour Scale (LCB; Craig et al., 1984) is a 17-item self-report measure assessing the extent to which an individual perceives his/her own behaviour to be under one’s own control (internal), or under the control of others (external). Rated on a six-point Likert scale, higher scores indicate an external locus of control whereas lower scores
indicate an internal locus of control. LCB scores appear to be stable over time, with Craig et al. (1984) reporting a one-week test-retest reliability of .90 in a non-clinical adult sample.

**New General Self-Efficacy Scale.** The New General Self-Efficacy Scale (NGSE; Chen, Gully, & Eden, 2001) is an eight-item self-report measure of an individual’s beliefs in their ability to perform across a wide variety of achievement situations. Rated on a five-point Likert scale, higher scores indicate greater self-efficacy. The NGSE has demonstrated high internal consistency (α > .85) and reasonable test-retest reliability across a 3- to 10-week period (.62 < r < .67) within an undergraduate student sample (Chen et al., 2001).

**Rosenberg Self-Esteem Scale.** The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1979) is a 10-item self-report questionnaire that measures one’s global sense of self-worth. Each item is rated on a four-point Likert scale with higher scores indicating higher self-esteem. The RSES exhibited high internal consistency (α = 0.91) when tested on a large community sample (Sinclair et al., 2010).

**Internal and External Feedback Propensity Scales (IEFPS; Herold et al., 1996).** This comprises two six-item scales that assess an individual’s predispositions toward seeking and using feedback from within oneself (internal) or from others (external). Items are rated on a five-point Likert scale, with higher scores on each scale reflecting greater inclination towards that source of feedback. Satisfactory internal consistency was reported for both scales (α = .69, .70 for internal, and .59 < α < .83 for external) when administered to independent samples of workplace supervisors, trainee helicopter pilots, and graduate management students (Herold et al., 1996). Confirmatory factor analyses supported the presence of two distinct
factors that shared a weak negative correlation ($r = -.17$ for students and -.27 for trainee pilots; Herold et al., 1996).

**Procedure**

Participants were randomly assigned to one of the four conditions (choice vs. no-choice, and cognitive therapy vs. psychoanalysis). During the testing session, participants were asked to complete the LCB, NGSE, RSES, and IEFPS respectively, followed by the decision-making task. Order of questionnaire completion was fixed as responses between questionnaires were unlikely to affect each other.

**Statistical Design**

The study had a $2 \times 2$ between-subjects design, with situational control (choice, no-choice) and treatment type (cognitive therapy, psychoanalysis) as between-subjects factors. Analyses of variance (ANOVAs) were conducted to investigate the effect of situational control on accuracy of treatment choice, estimates of treatment success, and confidence in treatment choice. If the main effect of situational control was significant, moderated hierarchical linear regression analyses were conducted to examine whether individual-difference variables (self-esteem, self-efficacy, locus of control, internal and external feedback propensity) moderated the effect. Standardised scores for the situational control condition (choice vs. no choice) and individual-difference questionnaire (RSES, NGSE, LCB, IEFPS – Internal, or IEFPS – External) were included in Step 1 of the model. The interaction term (product of situational control condition and individual-difference questionnaire scores) was included in Step 2 as the moderator.

**Results**

Two outliers (≥ 4SD from the mean) were identified and removed along with their yoked participants’ data. The final dataset comprised 96 participants.
Manipulation of Cumulative Success Rates

Preliminary analyses indicated successful manipulation of cumulative success rates between treatment conditions. In the cognitive therapy condition, cumulative success rates were consistently higher for cognitive therapy ($M = 55.65, SD = 11.78$) than psychoanalysis ($M = 35.42, SD = 12.47$), $t(51) = 13.80, p < .001$. Conversely, in the psychoanalysis condition, cumulative success rates were consistently higher for psychoanalysis ($M = 58.64, SD = 8.51$) than cognitive therapy ($M = 36.64, SD = 11.94$), $t(43) = 10.13, p < .001$. Between participants, the difference in cumulative success rates between the two treatments ranged from 4% to 57% ($M = 21.04, SD = 12.44$). Given this wide range, participants were divided into two groups based on the median discrepancy (19%). T-tests indicated that the size of the discrepancy between the two treatments’ success rates did not influence any of the task measures, $ps > .16$.

Effect of Situational Control on Judgment Accuracy and Estimates of Success

The proportion of participants in the choice condition who accurately chose the more effective treatment (45/48 participants; 94%) did not differ significantly from the no-choice condition (42/48 participants; 88%), $\chi^2 (1, N = 96) = 1.10, p = .29$. Estimated success rates also did not significantly differ between the choice and no-choice conditions, $F(1, 92) = 1.75, p = .19, \eta_p^2 = .02$ (Table 1.3). Additionally, the estimates were not influenced by treatment type, as both the main effect of treatment type, $F(1, 92) = 0.85, p = .36, \eta_p^2 = .01$, and the situational control × treatment type interaction, $F(1, 92) = 0.60, p = .44, \eta_p^2 = .01$, were not significant.

An additional analysis was conducted to assess the overall accuracy of participants’ estimates of treatment success. The actual cumulative success rate was mapped onto the corresponding numerical option on the estimated success rating
scale (e.g., an actual success rate of 38% would correspond to a scale point of two as it falls within the 35-39% bracket). The discrepancy between actual and estimated scale points was then computed, with positive values indicating overestimation and vice-versa. Values closer to zero indicated greater accuracy. A one-sample t-test revealed that participants were relatively accurate in their estimations ($M = 0.32, SD = 2.18), t(95) = 1.45, p = .15$.

Table 1.3.

*Mean (SD) estimated success and confidence ratings categorised by condition.*

<table>
<thead>
<tr>
<th></th>
<th>Cognitive therapy ($n = 26$)</th>
<th>Psychoanalysis ($n = 22$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated success</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choice</td>
<td>6.3 (1.4)</td>
<td>6.3 (1.4)</td>
</tr>
<tr>
<td>No-choice</td>
<td>5.6 (1.8)</td>
<td>6.1 (1.8)</td>
</tr>
<tr>
<td>Confidence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choice</td>
<td>5.0 (2.0)</td>
<td>5.2 (1.5)</td>
</tr>
<tr>
<td>No-choice</td>
<td>5.7 (1.5)</td>
<td>6.0 (1.3)</td>
</tr>
</tbody>
</table>

*Values refer to the scale options (one to nine).

**Confidence Ratings**

In addition to increasing feedback use, having situational control was predicted to increase confidence in judgments. A $2 \times 2$ ANOVA revealed that participants in the no-choice condition rated significantly higher levels of confidence in their chosen treatment than participants in the choice condition, $F(1, 92) = 4.95, p = .03, \eta^2_p = .05$ (Table 1.3). Confidence ratings were not influenced by which treatment was more effective, as the main effect of treatment type, $F(1, 92) = 0.46, p$
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=.50, $\eta^2_p = .01$, and the situational control $\times$ treatment type interaction, $F(1, 92) = 0.02, p = .90, \eta^2_p < .001$, were not significant. The results remained consistent in the subsample of participants who chose the more effective treatment.

**Individual-Difference Variables as Potential Moderators**

The main effect of situational control on confidence ratings was in the opposite direction to what we predicted. That is, instead of reporting greater confidence, we found that participants who had choice over the treatments administered felt less confident in their final treatment choice than those who had no choice. Thus, moderated regression analyses were conducted to examine whether individual-difference variables moderated this unexpected effect.¹

Moderated regression analyses were conducted for each of the five individual-difference variables (self-efficacy, self-esteem, locus of control, and internal and external feedback propensities; Table 1.4). For self-esteem, situational control condition and participants’ self-esteem scores were significant predictors, and accounted for 12% of the variance in confidence ratings (Step 1; Table 1.4). The interaction between situational control and self-esteem significantly predicted confidence ratings over and above the main effects, accounting for an additional 6% of the variance, $F(1, 92) = 6.10, p = .02$. The overall moderation model accounted for 18% of the variance in confidence ratings, $F(3, 92) = 6.55, p < .001$.

¹ Similar analyses could not be conducted for accuracy of treatment choice due to the ceiling effect observed between the choice and no-choice conditions.
Table 1.4.

*Moderated hierarchical linear regression with self-esteem as a moderator of the effect of control on confidence ratings (N = 96).*

<table>
<thead>
<tr>
<th>Step 1</th>
<th>B</th>
<th>SE</th>
<th>B</th>
<th>R²</th>
<th>R² Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.43</td>
<td>0.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Situational control condition</td>
<td>-0.32</td>
<td>0.16</td>
<td>-0.20*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-esteem</td>
<td>0.44</td>
<td>0.16</td>
<td>0.27**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2</th>
<th>B</th>
<th>SE</th>
<th>B</th>
<th>R²</th>
<th>R² Δ</th>
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<tbody>
<tr>
<td>Constant</td>
<td>5.48</td>
<td>0.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Situational control condition</td>
<td>-0.34</td>
<td>0.16</td>
<td>-0.21*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-esteem</td>
<td>0.35</td>
<td>0.16</td>
<td>0.22*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Situational control × Self-esteem</td>
<td>0.40</td>
<td>0.16</td>
<td>0.24*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. All scores refer to standardised/z-scores.*

* p < .05. ** p < .01. *** p < .001.

As illustrated in Figure 1.4, participants with lower self-esteem in the choice condition were less confident than their counterparts in the no-choice condition, and participants with higher levels of self-esteem. The remaining four individual-difference variables did not moderate the effect of perceived control on confidence ratings (though the interaction between situational control and self-efficacy approached significance, *p = .07*).
Figure 1.4. Moderating effect of self-esteem on the relationship between situational control and confidence in judgments.

**Discussion**

The aim of Experiment 2 was to investigate how situational control and individual-difference variables influence the use and subsequent impact of feedback in decision-making. The first hypothesis that having situational control would increase feedback use was not supported, as participants in the choice condition were no more accurate in their treatment choice or estimates of success than participants in the no-choice condition. An unexpected finding however was the ceiling rates of judgment accuracy for both conditions (>88%), compared to 67% on the identical task in Experiment 1. A possible explanation for this discrepancy was that testing was conducted in groups for Experiment 1 versus individually for Experiment 2. One-to-one interactions with the experimenter in the latter setting may have increased motivation and attention to the task. Unfortunately, as the majority of participants were accurate in their decision-making, further analyses of factors influencing attention to and use of feedback could not be conducted. This would be useful for future investigation.
The second hypothesis that having situational control would increase confidence in one’s judgment was not supported; instead, the opposite was observed. Participants in the choice condition were less confident in their judgments compared to participants in the no-choice condition, despite being equally accurate. This result was not consistent with previous research indicating that perceptions of control increased self-efficacy and confidence (Bandura & Wood, 1989; Renn & Fedor, 2001). Additionally, contrary to Butler et al. (2008), providing feedback did not strengthen participants’ confidence in their accurate responses.

To clarify why participants were less confident if given a choice over treatments, the interaction between individual-difference variables and control was explored. Results indicated that self-esteem significantly moderated the effect of control on confidence ratings – participants with lower self-esteem were less confident in their judgment when given a choice compared to having no choice, and compared to participants with higher self-esteem. Neither self-efficacy, locus of control, nor internal and external feedback propensity emerged as significant moderators. This pattern of findings did not support our hypothesis that participants with more positive self-evaluations would react more positively to having situational control. Instead, the results were consistent with experimental findings from Krenn et al. (2013) indicating that only self-esteem, and not the other core self-evaluation traits, significantly moderated the effect of feedback on performance. Given that self-esteem reflects one’s global sense of self (Judge & Bono, 2001), the current findings suggested that situational control may not be conducive to decision-making if the outcomes of one’s choices are perceived as a reflection of one’s worth or ability. For participants with lower self-esteem, lack of choice may have enabled external attributions of outcomes, whereas having choice meant that inaccurate
judgments would reflect one’s poor ability. This interpretation fits with the theory that individuals are less likely to seek or attend to feedback that poses a threat to self-esteem (Hattie & Timperley, 2007; Kluger & DeNisi, 1996).

Implications for Clinical Research and Practice

**Role of feedback in clinical practice.** Across both experiments, feedback significantly improved the accuracy of treatment choice, providing further support for the role of feedback in providing additional information to aid decision-making (Hatfield & Ogles, 2006; Sapyta et al., 2005). The findings from Experiment 2 also suggested that providing feedback on cumulative success rates was sufficient in producing high rates of accuracy, regardless of whether participants had active choice over the treatments administered. Furthermore, both studies showed that treatment labels did not significantly influence decision-making accuracy. There is no clear precedent to indicate that the use of different treatment labels (i.e., contrasting different therapies or interventions) might impact on results, but this would warrant further testing to establish the influence of treatment labels on decision-making. It would also be of interest to investigate whether this finding is generalizable to actual therapists in their practice, as the therapeutic orientation they identify with may bias their decision-making. Confirmatory bias and emotional connections to a particular therapy may mean that therapists would be more likely to seek and accept feedback that favours their therapy, and reject feedback that suggests the therapy is less effective (or that favours another therapy). If, however, similar results are observed in real-world therapeutic practice, it would increase the value and practicability of feedback across a range of therapeutic orientations.

Despite the encouraging preliminary findings, a substantial proportion of participants in Experiment 1 continued to choose the less effective treatment despite
receiving feedback, thereby signalling a need to identify barriers to feedback use. In real-world practice, where therapists have heavy caseloads and need to process much larger quantities of information about each client, typically under time pressure, they may be more susceptible to missing cues that are crucial to their judgments (Hatfield et al., 2010; Hatfield & Ogles, 2006). Researchers such as De Jong (2012) have emphasized that feedback is only useful to therapists in their decision-making and conduct of therapy if they are prepared to accept the feedback. As such, research delineating the barriers and facilitators of feedback use serves as a valuable complement to understanding therapists’ decision-making processes. In De Jong’s (2012) survey of therapists, lack of time and the need to attend to other pressing tasks were identified as barriers to feedback use, whereas therapist characteristics such as stronger preference for receiving external feedback and greater perceived value of feedback promoted more favourable attitudes. Drawing from such findings will help to inform future efforts to improve the adoption and sustainability of feedback interventions.

**Training and supervision.** We observed that participants with lower self-esteem were less confident when given control over treatments administered, even when their judgments were accurate. For feedback to shape learning, it should strengthen confidence following good performance and reduce confidence following poor performance (Butler et al., 2008). In psychotherapeutic practice, receiving supervision (typically from more experienced therapists) is seen as crucial for the training and development of therapists’ core skills (Bambling & King, 2000; Bambling, King, Raue, Schweitzer, & Lambert, 2006). To the extent that the present findings are generalisable, training and supervision can contribute to fostering therapists’ perceptions of control and responsibility, and building their confidence, in
using feedback effectively with clients (Riemer et al., 2005). This is especially important when feedback indicates ineffective treatment, which may trigger feelings of incompetency in therapists. By considering the therapist’s self-esteem, developmental level, and client complexity, the supervisor can support the therapist to interpret and process the feedback in a way that directs focus onto treatment planning, and identify steps to enhance the therapist’s skills and competencies. Such initiatives call for further research into how supervision can contribute to the implementation of feedback systems.

**Control and CFIT.** Given that having control has been found to promote one’s sense of responsibility and increase feedback-seeking efforts (Frese et al., 2007; Renn & Fedor, 2001), Experiment 2 attempted to manipulate participants’ control over treatment choice to examine its effects on their use of feedback. It was anticipated that conferring greater task control would increase participants’ sense of responsibility for attending to the task, thus improving their accuracy and confidence. Contrary to predictions, we found that situational control did not influence feedback-seeking and feedback use, but it did have an impact on participants’ judgment confidence. At the conceptual level, it is possible that providing situational control is not linked to increased responsibility for using feedback, and hence does not affect participants’ feedback behaviours on the task. This explanation would suggest that control is not an overall condition for promoting feedback use. It is also possible that our experimental manipulation of control was not successful – while we did not administer measures that would allow for such a manipulation check, the effect of situational control on participants’ confidence suggested a systematic difference in control between the choice and no-choice conditions.
While the lack of a situational control effect is consistent with Ashford and Black (1996), the present findings need to be interpreted with caution. Our investigation of control was limited by the ceiling effects on accuracy in Experiment 2 and a different pattern of results may emerge if the task was more challenging. We were also unable to quantitatively test the link between control, responsibility, and feedback use. Accordingly, a few theoretical and methodological issues related to the conceptualisation of control within the current study are discussed in the following section. These limitations suggest that further investigation of the effects of control within a clinical context is required to better understand its role in promoting feedback-seeking and feedback use.

Limitations & Directions for Future Research

In creating an experimental task that models clinical decision-making, an inevitable limitation is that of ecological validity. Therapists are rarely, if ever, tasked with choosing between two treatments on a computer screen. However, therapists are commonly faced with decisions that can have significant impact on the course of therapy, and on subsequent outcomes (e.g., whether to continue or terminate therapy; whether to adopt a new evidence-based therapy or stick with familiar practice). The cognitive processes underlying these decisions are likely complex and layered, and efforts to study these processes can be tedious. The computer task trialled in this chapter presents a novel method for investigating an important aspect of clinical decision-making, though future attempts to extend these investigations into real-world practice are highly encouraged.

Within the scope of the current investigation, the findings of improved accuracy point to the validity of the experimental paradigm and encourage the continued use of such tasks to explore clinical phenomena. In keeping with the
adoption of complementary research methods, the next step for research would ideally be an examination of these situational and dispositional constructs within real-world practice. Making decisions about hypothetical clients differs from real-world clients with whom therapists have an established alliance with, thus constraining the generalisability of our findings to clinical practice. Similarly, perceptions of confidence are likely to differ between experienced therapists and participants who have little experience with which to base their judgments on.

Therapists’ confidence in decision-making and how this confidence impacts on their practice are areas that have not received much attention in the clinical decision-making research, and warrant further investigation. A clearer understanding of factors influencing therapists’ confidence can assist in developing feedback systems that boost rather than diminish therapists’ self-efficacy.

Further tests are also required for our assumption that providing participants with choice over treatments affords them with greater situational control. Given that individuals often play an active part in structuring their environment to elicit more opportunities for control (Frese et al., 2007), participants in the no-choice condition may have developed strategies to gain more control (e.g., varying the pace or depth of engagement in the task). To test the assumed link between having choice and control, future replications of this paradigm can include assessment of participants’ perceptions of control over the task, and their attributions of treatment outcomes.

Finally, the unexpected ceiling effect for accuracy in Experiment 2 prevented further investigation of whether situational control promoted feedback-seeking and use. To maintain a parsimonious experimental design, we removed the less-feedback condition in Experiment 2 to focus on the impact of situational control. Reinstating the less-feedback condition with the situational control manipulation (i.e., half the
participants have choice and vice-versa) might clarify the extent to which the ceiling rates reflected feedback use, task difficulty, or differences in attention and motivation. The less-feedback condition would also present a more challenging task, and may magnify the effects of control on feedback use.

Conclusions

The current chapter aimed to test the information-augmentation mechanism of outcomes feedback and to identify some situational and dispositional factors that promote feedback use. However, we should not only aim to promote conditions conducive to feedback use, but also try to reduce associated barriers (Bickman, 2008). Knowledge of both facilitators and barriers will contribute to enhancing the utility of feedback to therapists’ practice and to improving quality of care. Overall, the findings from the current chapter appear to indicate that a likely formula for promoting optimal feedback use is one in which the conditions of feedback delivery (e.g., level of control) match the characteristics of the therapist (e.g., self-esteem). Implementing an effective feedback system is not an easy task, and requires fine-tuning a climate that is conducive to learning from and responding to feedback (Hattie & Timperley, 2007).
SECTION TWO

Identifying moderating and mediating variables that influence how individuals respond to feedback
Foreword

Section One focused on examining factors that influence the use of outcomes feedback and the degree to which feedback can influence decision-making processes. Section Two narrows the focus to the use of feedback about an individual client’s progress. Like outcomes feedback, progress feedback is a valuable source of information that aids therapists’ decision-making and practice (Hatfield & Ogles, 2006; Sapyta, Riemer, & Bickman, 2005). Clinical trials have shown that providing progress feedback to clients and their therapists improved treatment outcomes for clients who were not-on-track (De Jong, Van Sluis, Nugter, Heiser, & Spinhoven, 2012; Newnham, Hooke, & Page, 2010b; Shimokawa, Lambert, & Smart, 2010). However, while most investigations have emphasised the importance of delivering feedback, few studies have examined how clinical feedback is received.

In this section, we present two studies (an experimental investigation and a clinical trial) that examine how feedback is interpreted by individuals, and the factors that influence these interpretations. Such an understanding is crucial to informing how we can deliver feedback that will have a positive effect on subsequent performance or outcomes. Both studies tested a host of feedback-specific and individual-difference variables to identify possible mediators and moderators of feedback response. Knowledge of these potential mediators and moderators can enhance our theoretical understandings of how clinical feedback works, and the conditions under which its effectiveness may vary.
Use of an experimental analogue to investigate how feedback and individual-difference variables affect response to feedback

Individuals vary in how they respond to feedback, and their responses are influenced by a multitude of dispositional, contextual, and feedback-specific factors (Anseel, Beatty, Shen, Lievens, & Sackett, 2013; Kluger & DeNisi, 1996; Shute, 2008). While providing feedback can increase motivation and enhance performance, on some occasions the provision of feedback produces no effect or even debilitates performance (Kluger & DeNisi, 1996). Given the variability, it is clear that we need to develop a more nuanced understanding of feedback to provide information about how and when feedback can be delivered to assure its optimal effects.

The existing feedback literature provides some direction as to a range of important feedback and individual-difference factors that contribute to response variability. Much of this research has been conducted within organisational and educational settings, and less so within the context of clinical feedback, which is a relatively novel feedback application (Lambert, Whipple, et al., 2001). A clinically-oriented investigation would be useful as not all findings from the organisational and educational literature may be relevant or applicable to the design and delivery of feedback about client outcomes in psychotherapy. In particular, the predominant focus in the feedback literature on achievement orientation may render some findings unsuitable for clinical contexts, as successful mental health treatment is not just a matter of clients striving to achieve a desired goal. Similarly, feedback information about a client's level of symptoms or wellbeing may hold different meaning and value to scores on a test. As such, a different host of factors may contribute to variations in responses to clinical feedback.
Accordingly, the present study aimed to investigate how characteristics of feedback and of the feedback recipient influence feedback response, with a focus on variables that bear relevance to psychotherapy. This was done to maximise the applicability and utility of findings to clinical feedback interventions. Several reviews have also concluded that feedback response likely results from interactions between these characteristics (Kluger & DeNisi, 1996; Visscher & Coe, 2003). The following sections provide a brief review of the chosen variables, and where available, findings relating to their interactions with each other. It was anticipated that the key variables identified through the current study would enhance our understanding of factors contributing to variability in feedback response. This understanding may in turn improve our ability to specify feedback mechanisms responsible for change, and predict how individual clients respond to feedback.

**Characteristics of Feedback**

The way that feedback information is framed can impact on how the feedback is interpreted. Two specific characteristics, referent standard and progress status, will be examined here. Referent standard refers to the benchmark against which an individual’s performance is compared. Specifically, feedback can compare one’s performance against an ipsative/self-referenced standard (e.g., one’s previous performance), or a normative/norm-referenced standard (e.g., the performance of a similar group of individuals; McColskey & Leary, 1985). Similarly, clinical feedback compares the client’s progress against previous progress (De Jong et al., 2012; Lambert, Whipple, et al., 2001), or to an expected treatment response generated based on previous client samples (Lutz, Martinovich, Howard, & Leon, 2002; Newnham et al., 2010b). Studies have found that ipsative feedback promotes better performance and greater self-efficacy than normative feedback (Chen &
Mathieu, 2008; Shih & Alexander, 2000; but see Biesinger & Crippen, 2010). It was proposed that norm-referencing reduces motivation and effort if individuals compare themselves to more able individuals, whilst self-referencing shifts the focus to learning and self-improvement (Chen & Mathieu, 2008; Shih & Alexander, 2000).

Comparisons against a referent standard enable distinction between negative and positive feedback. Negative feedback indicates performance below the referent standard (e.g., failure), while positive feedback indicates performance that meets or exceeds the standard (e.g., success). The clinical equivalent is the progress status of the client, where not-on-track feedback indicates that the client is not making expected progress, and on-track feedback indicates the client is making positive progress. Research generally shows that positive feedback improves performance to a greater extent compared to negative feedback (Krenn, Wuerth, & Hergovich, 2013). However, under some circumstances, negative feedback and normative feedback can be beneficial (Bono & Colbert, 2005; McColskey & Leary, 1985). For example, participants reported more positive expectations of future performance following norm-referenced success feedback and self-referenced failure feedback, suggesting an interaction between referent standard and progress status (McColskey & Leary, 1985).

Clinical feedback has been found to be more effective for not-on-track clients compared to on-track clients (Shimokawa et al., 2010), but the utility of presenting norms and its effect on treatment outcomes have not been investigated experimentally. Given that referent standards and progress status are potentially controllable features of feedback, the current study proposed to investigate how these two feedback factors influence outcomes. A better understanding of feedback frame can assist in designing more effective feedback.
Characteristics of the Feedback Recipient

Individual-difference characteristics also influence how feedback is interpreted, and the goals that individuals subsequently set and strive for (Anseel et al., 2013; Kluger & DeNisi, 1996). Self-esteem for example has consistently emerged as an important moderator of feedback response (Brown, 2010; Krenn et al., 2013). Some studies suggest that high self-esteem buffers against negative feedback and enhances the effects of positive feedback (Brown, 2010; Shrauger & Rosenberg, 1970). Yet, a study by Bernichon, Cook, and Brown (2003) found that low self-esteem individuals sought positive, self-enhancing feedback, while high self-esteem individuals tended to seek feedback that verified their self-image, even if that feedback was negative. This observation suggests that the interaction between self-esteem and feedback may be more complex, and warrants further exploration.

Locus of control has also been implicated as another moderator of feedback response, though evidence of its importance has been inconsistent. Previous studies have found that individuals with internal locus of control perform better following feedback compared to individuals with external locus of control (Baron, Cowan, & Ganz, 1974; Feather, 1968; Shavit & Rabinowitz, 1978). Bono and Colbert (2005) proposed that individuals with internal locus of control perform better because they believe that outcomes are within their control, rather than due to chance or fate. Nonetheless, other studies have failed to find significant associations between locus of control and feedback response (e.g., Krenn et al., 2013). Relative to global self-esteem, the role of locus of control may have a narrower span of influence in individuals’ perceptions and behaviours – thus yielding smaller or non-significant effects in feedback studies. Even though the main effects for locus of control on feedback response may be less consistent, the previous example of self-esteem has
demonstrated that it is worth considering how locus of control interacts with other factors such as feedback characteristics. As Strickland (1978) proposed, it may be the congruence between individual-difference and feedback characteristics that determines feedback response. Studying interactions would thus allow us to examine the match between self-esteem, locus of control, and specific feedback factors.

**Cognitive-Affective Variables as Possible Mediators of Feedback Response**

An examination of individual’s internal cognitive-affective reactions to feedback is also important because these reactions can determine whether the individual subsequently increases effort, modifies the goal, withdraws from the task, or rejects the feedback message (Hattie & Timperley, 2007; Ilgen & Davis, 2000). At the cognitive-affective level, providing feedback has been associated with increased motivation (Baumeister & Tice, 1985; Rise, Eriksen, Grimstad, & Steinsbekk, 2012); increased task engagement (Baumeister & Tice, 1985; Bodroža, 2011); greater self-efficacy and confidence following successful performance (Badami, VaezMousavi, Wulf, & Namazizadeh, 2012; Karl, O'Leary-Kelly, & Martocchio, 1993); greater perceptions of control over performance (Renn & Fedor, 2001); and increased likelihood of performing the task in future (McColskey & Leary, 1985). Importantly, these reactions may vary based on interactions between progress status (Bodroža, 2011), referent standards (McColskey & Leary, 1985), and individual differences such as self-esteem (Jussim, Yen, & Aiello, 1995). The presence of these moderating factors explains how undesirable feedback effects can occur – for example, high self-esteem individuals were more likely to withdraw from a task following failure feedback than low self-esteem individuals (Baumeister & Tice, 1985). Since the effectiveness of feedback is contingent upon shifts in cognitive-affective reactions
(Kluger & DeNisi, 1996), a direct investigation of the extent to which these reactions mediate changes in outcomes following feedback is warranted.

**Present Study**

Thus far, the literature suggests that feedback and individual-difference factors impact individuals’ cognitive-affective reactions to feedback and eventual outcomes. However, the pattern of findings has been mixed, and the generalisability of findings between settings is unclear. To develop more effective feedback interventions, it is crucial to understand which individual-difference and feedback characteristics influence outcomes, and whether and how they can be manipulated (Anseel et al., 2013; Visscher & Coe, 2003). Such an evaluation of causality and controllability can be executed via experimental methods. In the previous chapters, we acknowledged the strengths and weaknesses of the experimental method. For the present investigation, the traditional laboratory-based experiment is recognised for its ability to infer causality and uncover causal mechanisms (Borkovec, Echemendia, Ragusea, & Ruiz, 2001; Grabe, Ward, & Hyde, 2008).

The current study proposed to use an experimental analogue to examine the relationships between feedback factors, individual differences, and responses to feedback about blood pressure during a relaxation exercise. Participants received either normative, ipsative, or no feedback about their blood pressure “activity levels”. The feedback also indicated whether their progress was on-track or not-on-track. The relaxation exercise was chosen because it had face validity as a possible psychotherapeutic activity. Tasks that are typically used in feedback studies often involve training through repeated exposure, and with feedback, learners can begin to distinguish accurate from inaccurate responses. In contrast, feedback on blood pressure provides novel information because individuals do not have direct access to
their blood pressure levels. Indeed, previous studies have shown that there is no reliable association between predicted and actual blood pressure (Baumann & Leventhal, 1985). It is also difficult to control one’s blood pressure, and efforts to do so can be counter-productive (Strickland, 1978). This was considered ideal as the task would produce greater variability in outcomes, and possibly in participants’ reactions to the feedback. However, a corresponding disadvantage would be that blood pressure may not be a reliable indicator of outcome and response to feedback. To overcome this potential limitation, the “objective” indicator of blood pressure activity levels was supplemented by two “subjective” indicators of task outcome (participants’ subjective reports of relaxation and muscle tension) – the measurement of these indicators is described in further detail in the Method section.

Given the inconsistencies in the literature on feedback effects, the present study was largely exploratory and the following predictions were offered. First it was hypothesised that participants’ task perceptions and outcomes would vary based on 1) the referent standard used (normative vs. ipsative vs. no feedback), 2) the progress status conveyed by the feedback (on-track vs. not-on-track), and 3) in line with McColskey and Leary (1985), a possible interaction between referent standard and progress status. It was also hypothesised that the effect of these feedback factors on task outcomes would be mediated by participants’ cognitive-affective reactions to the feedback. Finally, it was hypothesised that individual differences in self-esteem and locus of control would moderate (i.e., alter) the relationship between feedback factors and outcomes.

**Method**

**Participants**

One hundred and fifty-eight undergraduate psychology students participated
in this experiment for partial course credit. Their ages ranged from 17 to 40 years ($M = 19.1$, $SD = 3.5$) and 64% were female. Participants were randomly allocated to the ipsative ($n = 52$), normative ($n = 53$), or control no-feedback condition ($n = 53$). The experiment was granted ethics approval by The University of Western Australia Human Research Ethics Committee, and all participants provided informed consent before commencing the experiment.

**Materials & Task Design**

**Individual-difference questionnaires.** The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1979) is a 10-item self-report questionnaire measuring one’s global sense of self-worth. Rated on a four-point Likert scale, higher scores indicate higher self-esteem. The RSES exhibited high internal consistency within a large community sample ($\alpha = 0.91$; Sinclair et al., 2010) and within the current sample ($\alpha = 0.87$).

The Locus of Control of Behaviour Scale (LCB; Craig, Franklin, & Andrews, 1984) is a 17-item self-report measure of the extent to which an individual perceives his/her behaviour to be under one’s own control (internal), or under the control of other influences (external). Rated on a six-point Likert scale, higher scores indicate external locus of control, whereas lower scores indicate internal locus of control. The LCB showed a one-week test-retest reliability of .90 in a non-clinical adult sample (Craig et al., 1984), and high internal consistency in the current sample ($\alpha = 0.88$).

**Perceptions questionnaire.** Items were generated to measure participants’ perceptions of their relaxation state and cognitive-affective reactions to the task. Participants were asked to rate based on the present moment: 1) how relaxed they felt; 2) how tense their muscles felt; 3) how much control they felt they had over their (a) blood pressure activity level, (b) breathing rate, and (c) distracting thoughts
that take their mind away from the relaxation exercise; 4) how confident they were in their ability to control the tension in their muscles during the relaxation exercise; 5) how motivated they were to reduce their blood pressure activity level through engaging in the relaxation exercise; and 6) how closely they were/thought that they would be able to follow the instructions on the relaxation CD (i.e., engagement). Items were rated on a scale from zero to six, with zero representing a lack of the construct (e.g., not relaxed at all) and six representing a high level of the construct (e.g., very relaxed). The questionnaire was administered at four time points – pre-exercise, pre-feedback (after first half of the exercise), post-feedback (before second half of the exercise), and post-exercise, with phrasing of items modified to reflect the different time points. Items 3 to 6 were summed to derive a composite cognitive-affective reactions score for each time point. Internal consistency ($\alpha$) of the questionnaire was .73 at pre-task and .76 at post-task, indicating that the questionnaire had adequate reliability for use in the present study.

**Relaxation exercise.** Participants listened to a 20-minute audio recording of a progressive muscle relaxation (PMR) exercise, which involved tensing and then relaxing various muscle groups. The recording was spliced into 10 two-minute segments, with breaks in between each segment to measure blood pressure using a standard electronic sphygmomanometer with a cuff pump. Ten blood pressure measures were recorded.

**Feedback graphs and definitions of progress status.** Feedback graphs, and the accompanying definitions for on-track and not-on-track progress, were developed and validated in a pilot conducted with 12 undergraduate and graduate students (50% female, mean age = 23.2 years). The feedback graph depicted the participant’s activity level at each measurement point, computed as the ratio of systolic to
diastolic blood pressure. The activity levels reflected participants’ actual blood pressure measures, and were not manipulated. Ipsative feedback comprised a graph of participants’ activity levels for the first half of the exercise (i.e., over five measurement points; see Figure 2.1b and 2.1d). Normative feedback comprised participants’ activity levels (similar to ipsative feedback) plotted against two lines representing upper and lower “expected relaxation response trajectories” (Figure 2.1a and 2.1c).

*Figure 2.1.* Example feedback graphs depicting activity levels for an on-track participant in the (a) normative condition or (b) ipsative condition, and for a not-on-track participant in the (c) normative condition or (d) ipsative condition.
The trajectories were developed using activity levels from a pilot sample – the mean activity level was computed for each measurement point, and upper and lower boundaries of half and one standard deviation below the mean of each point were calculated to produce the final trajectories. This calculation was similar to feedback designs employed by Newnham et al. (2010b), Lutz et al. (2002), and Miller, Duncan, Brown, Sorrell, and Chalk (2006) in previous clinical trials.

Using data obtained from the pilot sample, the definitions for on-track and not-on-track progress were manipulated such that approximately half of the participants’ progress graphs would be classified as on-track, and the other half would be classified as not-on-track. For the ipsative condition, on-track progress was defined as three or more points depicting a decrease in activity levels (Figure 2.1b); all other patterns of change (e.g., fluctuating or increasing activity levels) were labelled as not-on-track (Figure 2.1d). For the normative condition, on-track progress was defined as three or more points falling within the boundaries of the expected relaxation response trajectories (Figure 2.1a). However, some participants had extremely high activity levels due to higher systolic relative to diastolic blood pressure; to maintain credibility of feedback, the definition for the ipsative condition then applied. All other patterns of progress were labelled as not-on-track (Figure 2.1c).

It may be worth noting that the “ipsative” and “normative” feedback graphs were not mutually exclusive in the present study. Participants in the normative condition were able to make ipsative comparisons by comparing their current progress to their past progress. However, the normative feedback graph draws particular attention to the participant’s progress relative to the expected trajectories, whereas the ipsative feedback graph only provides information about the
participant’s individual progress (with no additional markers for further comparison). Thus, despite the small visual difference between both feedback graphs, the two feedback conditions were considered sufficiently distinct from one another.

**Procedure**

First, participants completed the RSES and LCB. They were informed that the aim of the experiment was to examine the effects of feedback on changes in blood pressure during a relaxation exercise, but were not told about when they would receive feedback. Participants then completed the pre-exercise perceptions questionnaire, and the first blood pressure measure was taken before the relaxation exercise began. During the exercise, the participant’s blood pressure was measured after each two-minute interval of the recording, but results were not shown to the participant. Halfway through the exercise (i.e., after the fifth measurement point), participants were asked to fill out the pre-feedback perceptions questionnaire. Participants in the control condition then resumed the relaxation exercise, while those in the ipsative and normative conditions viewed their feedback graphs and completed the post-feedback perceptions questionnaire. As part of the feedback delivery, the experimenter also asked a few standardised questions to prompt elaboration of the feedback graph (e.g., “Does this graph fit with what you experienced during the exercise? If no, what was different?”). The questions aimed to encourage greater reflection and processing of the feedback graph, but did not include exploration of what could be done differently (e.g. “What could you do differently to feel more relaxed?”), so as not to bias results in the second half of the exercise. At the end of the relaxation exercise, participants completed the post-exercise perceptions questionnaire. All participants were then provided with
feedback on their blood pressure and a handout describing information about blood pressure.

**Design and Analysis**

The study employed a $3 \times 2$ between-subjects design, with referent standard (normative, ipsative, control) and progress status (on-track, not-on-track) as independent variables. Though participants completed the perceptions questionnaire at four time points, only pre- and post-exercise scores were analysed for the current study.\(^2\) Task outcome was defined as comprising objective and subjective indicators of relaxation. Average activity levels for the two halves of the relaxation exercise were computed, and a difference score between the two halves was computed as the objective indicator of relaxation. Subjective indicators were changes in self-reported relaxation and muscle tension from the perceptions questionnaire (expressed as difference scores). Change in cognitive-affective composite scores from pre- to post-exercise was calculated as a mediator variable, while participants’ self-esteem and locus of control scores were measured as moderator variables.

To evaluate the mediation hypotheses, we applied an SPSS macro which uses bootstrapping to test indirect effects (Hayes, 2013). Bootstrapping provides 95% bias-corrected confidence intervals for the estimated population value of the indirect effect (based on $k = 5000$ samples in the current study). The indirect effect is significant if zero is not within the confidence interval. Preacher and Hayes (2004) advocated the use of bootstrapping over the causal steps approach described by

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\(^2\) Analyses were conducted on pre- and post-exercise scores rather than post-feedback and post-exercise scores for two reasons. First, the control condition did not have post-feedback scores. The control condition’s pre-feedback scores may be used as a substitute, but the difference in wording between pre- and post-feedback questions may impact on subsequent results. Second, comparing pre-post scores may conflate the effects of the task and those of the feedback. However, the three feedback conditions did not differ from each other on any of the initial measures, or on their response to the first half of the task. Thus, any differences observed can largely be attributed to the feedback itself.
Baron and Kenny (1986) and the Sobel test of indirect effects because bootstrapping has higher statistical power and does not assume normal sampling distributions.

Finally, the moderation hypotheses were tested using moderated hierarchical regression analyses. For each model, referent standard, progress status, and self-esteem/locus of control were entered in Step 1, followed by two-way interactions between each variable in Step 2, and the three-way interaction in Step 3. All individual variables were standardised (i.e., z-scores) before entry, and interaction terms were calculated as products of the standardised variables. Unless otherwise stated, assumptions for all the analyses were met.

Results

Participants in the three conditions did not differ in age, gender composition, initial activity levels, self-esteem, or locus of control ($F$s ≤ 1.27, $p$s ≥ .29; for gender, $\chi^2(2) = 3.51, p = .17$; see Table 2.1 for self-esteem and locus of control scores). Two participants were excluded from further analyses due to missing data and outlier scores (≥ 4SD from the mean), resulting in a final dataset of 156 participants.

Table 2.1.

Descriptive statistics for self-esteem and locus of control scores for the three referent standard conditions ($N = 158$).

<table>
<thead>
<tr>
<th></th>
<th>Normative</th>
<th>Ipsative</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-esteem</strong></td>
<td>M (SD)</td>
<td>30.04 (4.87)</td>
<td>30.90 (4.98)</td>
</tr>
<tr>
<td>Range</td>
<td>17 – 39</td>
<td>18 – 40</td>
<td>20 – 39</td>
</tr>
<tr>
<td><strong>Locus of Control</strong></td>
<td>M (SD)</td>
<td>43.81 (13.52)</td>
<td>44.87 (11.98)</td>
</tr>
<tr>
<td>Range</td>
<td>20 – 74</td>
<td>24 – 67</td>
<td>27 – 67</td>
</tr>
</tbody>
</table>

$^a$ $n = 157$ as one participant in the normative condition missed an item.
Validity Check for Progress Status Classifications

A chi-squared test indicated that on-track and not-on-track classifications were equally distributed across referent standard conditions, $\chi^2(2) = 4.07, p = .13$ (Table 2.2). Activity levels were significantly lower for on-track compared to not-on-track participants over the first half of the exercise, $F(1, 154) = 4.27, p < .05, \eta_p^2 = .03$. Within-subjects contrasts also revealed a significant linear interaction between progress status and time, characterised by increasing activity levels for not-on-track participants and decreasing activity levels for on-track participants (Figure 2.2). Overall, the results provided support for the validity of the progress status classifications.

Table 2.2.

Mean (SD) pre- to post-exercise changes in objective and subjective relaxation state, and cognitive-affective reactions for participants categorised by conditions.

<table>
<thead>
<tr>
<th>Referent Standard</th>
<th>Progress Status</th>
<th>Change in Activity Levels $^a$</th>
<th>Change in Relaxation $^a$</th>
<th>Change in Tension $^b$</th>
<th>Change in Reactions $^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normative</td>
<td>OT ($n = 32$)</td>
<td>0.05 (0.08)</td>
<td>2.22 (0.87)</td>
<td>-1.31 (1.23)</td>
<td>4.31 (3.95)</td>
</tr>
<tr>
<td></td>
<td>NOT ($n = 20$)</td>
<td>0.05 (0.10)</td>
<td>1.95 (0.94)</td>
<td>-0.55 (1.57)</td>
<td>2.20 (4.41)</td>
</tr>
<tr>
<td>Ipsative</td>
<td>OT ($n = 22$)</td>
<td>0.05 (0.08)</td>
<td>2.32 (1.17)</td>
<td>-1.77 (1.23)</td>
<td>5.55 (4.46)</td>
</tr>
<tr>
<td></td>
<td>NOT ($n = 30$)</td>
<td>0.03 (0.07)</td>
<td>2.40 (1.25)</td>
<td>-1.03 (1.47)</td>
<td>3.43 (5.04)</td>
</tr>
<tr>
<td>Control</td>
<td>OT ($n = 29$)</td>
<td>0.004 (0.06)</td>
<td>2.31 (1.04)</td>
<td>-1.24 (0.79)</td>
<td>5.17 (4.91)</td>
</tr>
<tr>
<td></td>
<td>NOT ($n = 23$)</td>
<td>0.01 (0.08)</td>
<td>1.83 (0.83)</td>
<td>-0.91 (1.38)</td>
<td>3.39 (2.79)</td>
</tr>
</tbody>
</table>

$^a$ More positive change = Lower activity levels; more relaxed; more positive perceptions.

$^b$ More negative change = Less muscle tension.
Figure 2.2. Mean activity levels for on-track and not-on-track participants during the first half of the relaxation exercise.

Feedback Effects

Four 3 × 2 between-subjects ANOVAs were conducted to investigate the effects of referent standard (normative, ipsative, control) and progress status (on-track, not-on-track) on participants’ objective and subjective relaxation, and cognitive-affective reactions (Table 2.2). The main effect of referent standard was only significant for changes in activity levels, \( F(2, 150) = 3.97, p < .05, \eta^2_p = .05 \).

Post-hoc t-tests revealed that the normative condition showed a greater reduction in activity levels compared to the control condition, \( p < .05 \). The ipsative condition did not differ from the normative, \( p = 1 \), or control condition, \( p = .16 \).

The main effects of progress status were significant for changes in muscle tension, \( F(1, 150) = 8.52, p < .01, \eta^2_p = .05 \), and changes in cognitive-affective reactions, \( F(1, 150) = 7.96, p < .01, \eta^2_p = .05 \). On-track participants reported greater reductions in muscle tension and more positive cognitive-affective reactions from
pre- to post-exercise, compared to not-on-track participants. All other main effects and interactions were not significant.

**Mediating Role of Cognitive-Affective Reactions**

We conducted six simple mediation analyses with bootstrapping to assess whether changes in participants’ cognitive-affective reactions mediated the effect of progress status or referent standard on the three indicators of relaxation. Two analyses revealed significant indirect effects of progress status on changes in muscle tension and relaxation, through changes in cognitive-affective reactions. Specifically, the total effect of progress status on changes in muscle tension ($\beta = -.27, t = -2.65, p < .01$) was reduced but remained significant after controlling for changes in cognitive-affective reactions ($\beta = -.21, t = -1.99, p = .049$). The 95% bias-corrected confidence intervals did not cross zero [-.16, -.02], indicating a significant indirect effect (point estimate = -0.07, $SE = 0.03$). The overall mediation model accounted for 10.5% of the variance in changes in muscle tension, $F(2, 153) = 8.98, p < .001$.

The total effect of progress status on changes in relaxation muscle tension was not significant ($\beta = .09, t = 1.09, p = .28$) but was reduced after controlling for changes in participants’ cognitive-affective reactions ($\beta = .02, t = 0.20, p = .84$). Again, the 95% bias-corrected confidence intervals did not cross zero [.02, .15], indicating a significant indirect effect (point estimate = 0.07, $SE = 0.03$). This mediation model accounted for 11.9% of the variance in changes in muscle tension, $F(2, 153) = 10.35, p < .001$.

The two significant indirect effects observed above indicated that changes in participants’ composite cognitive-affective reactions significantly mediated the relationship between progress status and changes in subjective indicators of muscle tension and relaxation. To examine if particular cognitive-affective items uniquely
contributed to the mediation, follow-up multiple mediator models were analysed with the individual cognitive-affective items entered simultaneously as mediators. The analyses revealed that only the confidence item was a significant mediator as its 95% confidence interval did not contain zero. The remaining cognitive-affective items did not significantly contribute to the indirect effects over and above the confidence item. Thus it appears that the effect of progress status on changes in subjective indicators of relaxation was largely mediated by changes in participants’ confidence.

**Moderating Roles for Self-esteem & Locus of Control**

Finally, separate moderated hierarchical regression analyses were conducted to investigate whether self-esteem and locus of control influenced the relationship between feedback factors and task outcomes. Simple effects observed from the regression analyses were consistent with the main effects of referent standard and progress status derived from the ANOVAs. None of the two- or three-way interactions significantly predicted cognitive-affective reactions or relaxation indicators, indicating that self-esteem and locus of control did not moderate the relationship between feedback factors and task outcomes.

**Discussion**

The present study used an experimental analogue to examine the relationships between feedback factors, individual differences, and individuals’ responses to feedback about blood pressure during a relaxation exercise. The first hypothesis that feedback factors of referent standard (normative vs. ipsative vs. no feedback) and progress status (on-track vs. not-on-track) would influence participants’ cognitive-affective reactions and task outcomes was partially supported. The use of referent standards significantly influenced changes in activity levels, with
participants in the normative feedback condition showing greater reductions in activity levels (i.e., lower systolic to diastolic ratios) from pre- to post-exercise compared to the no-feedback control condition. However, contrary to previous literature (Chen & Mathieu, 2008; Shih & Alexander, 2000), we did not find significant differences in outcomes between the normative and ipsative feedback conditions. Additionally, unlike McColskey and Leary (1985), we did not observe any significant interactions between referent standard and progress status. Instead, progress status independently influenced task perceptions and outcomes, with on-track participants reporting larger reductions in muscle tension and more positive cognitive-affective reactions than not-on-track participants. These findings provided further support for the differential impact of progress status, favouring positive over negative feedback (Krenn et al., 2013).

We also hypothesised that the effect of feedback factors on task outcomes would be mediated by participants’ cognitive-affective reactions. We found that changes in cognitive-affective reactions significantly mediated the relationship between progress status and changes in subjective indicators of muscle tension and relaxation, but not objective activity levels. The significant indirect effect for changes in relaxation was interesting, given that the total effect of progress status on relaxation was not significant. Indeed, Hayes (2009) pointed out that an advantage of bootstrapping is that it recognises that indirect effects can exist in the absence of significant total effects. Conversely, cognitive-affective reactions did not mediate the relationship between referent standard and task outcomes. Follow-up analyses also provided some evidence that the primary contributor of the significant mediation was participant’s confidence in their ability to control the tension in their muscles. That participants’ confidence was the only significant mediator to emerge may provide
useful hints as to how participants interpreted the feedback. Studies have shown that confidence is a good single-item measure of one’s self-efficacy (i.e., confidence in one's ability to perform or succeed in a given task or context; Lee & Bobko, 1994). The present task required participants to tense then relax specific muscle groups in their body. The significant mediation observed for confidence suggests that participants may have interpreted positive on-track feedback as reinforcement of their ability and success in reducing muscle tension and achieving relaxation.

Common method variance between the subjective indicators may explain why the mediation effect did not extend to objective activity levels. However, confidence and/or self-efficacy present as potentially important mediators of feedback response and further exploration of the links between feedback, confidence, and outcomes would be valuable.

Finally, neither self-esteem nor locus of control moderated the relationship between feedback factors and task outcomes, thus the moderation hypothesis was not supported. The current findings are inconsistent with previous studies demonstrating links between these individual differences and feedback response (e.g., Baron et al., 1974; Krenn et al., 2013), but this is not surprising given the mixed findings in the literature (Krenn et al., 2013). One possible explanation for the lack of significant moderators is that previous studies examined the role of individual differences in achievement-oriented tasks, whereas the current study framed the task within a clinical intervention context. Thus the meaning and purpose of the task may modify the extent to which self-esteem and locus of control influenced feedback response. A second explanation is that feedback was only delivered once during the exercise, compared to over multiple occasions. Single delivery may attenuate any effects from individual differences (Krenn et al., 2013). Future studies investigating the impact of
individual differences when feedback frequency is varied may assist in identifying optimal feedback schedules.

**Implications for the Delivery of Clinical Feedback**

The findings from the present study have prompted several considerations and potential applications for the delivery of clinical feedback. First, the present study provided supporting evidence for giving feedback to enhance task outcomes (analogous to the benefits observed in the clinical feedback literature; Lambert, Whipple, et al., 2001). However, the referent standard (normative versus ipsative) used in the feedback appeared to have little impact on the outcomes. Previous clinical feedback studies have presented clients’ progress feedback using different referent standards – e.g., comparing the client’s progress against previous progress (De Jong et al., 2012; Lambert, Whipple, et al., 2001), or to an expected treatment response generated based on previous client samples (Lutz, Martinovich, Howard, & Leon, 2002; Newnham et al., 2010b). Thus, extending the present findings to clinical practice, it may suggest that simply providing feedback on the progress of the client is sufficient to achieve positive effects on client outcomes – variations in how the feedback is presented visually in terms of referent standard makes little difference. Further research to clarify this point would be beneficial in informing the design of effective clinical feedback systems (an example of such research is undertaken in Chapter 4).

Second, the present findings suggest that assessment of clients’ cognitive-affective reactions to feedback may be useful indicators of broader therapy outcomes. We found that participants’ cognitive-affective reactions mediated feedback response, and that on-track participants reported more positive cognitive-affective reactions to the task than not-on-track participants. In clinical practice, the
The greatest impact of feedback would ideally be on clients who are not-on-track, as this enables actions to be implemented by the client and/or therapist to minimise the likelihood of poor treatment outcomes. Consequently, evaluating clients’ level of confidence, motivation, engagement, perceptions of control, and perseverance at the time of receiving not-on-track feedback may inform therapists about the client’s likely participation in the remainder of therapy, and hence their likely treatment outcomes. If these indicators are low, therapists may implement techniques or exercises (e.g., motivational interviewing, behavioural experiments) to improve client’s self-efficacy and motivation to continue engaging in the therapy process, and to minimise treatment dropout.

Finally, the individual-difference variables of self-esteem and locus of control did not influence feedback response in the present study. Both variables are closely linked to psychopathology, and are sometimes targets of psychotherapy (e.g., building self-esteem; increasing internal coping resources). As an implicated risk/protective factor in the development of clinical problems, the role of self-esteem as a moderator of feedback response will be investigated within a clinical setting in the next chapter (Chapter 3).

**Limitations**

This experiment represented an attempt at using an experimental analogue to model individuals’ feedback reactions within a more clinically-relevant setting. Results were generally in the expected directions (e.g., positive on-track feedback enhanced cognitive-affective reactions relative to negative not-on-track feedback), providing support for the utility of this task in studying feedback and its mechanisms. However, given the novelty of the task, replications are required to
verify the reliability of our findings before translations to field settings are permissible.

A few limitations and directions for future research are noted. First, the feedback effects observed in this study were small and were not observed consistently across all outcome variables. On one hand, the significant feedback effects suggested that factors such as referent standard and progress status were controllable, and can lend themselves to the design of more effective feedback interventions. On the other hand, the effects tended to be small and inconsistent, prompting consideration of feedback strength in the present study. Perceived credibility and subsequent acceptance of feedback are important if feedback is to effect changes in behaviour and outcomes (Sapyta, Riemer, & Bickman, 2005). In our post-experiment debrief, only three participants questioned whether the feedback reflected their actual blood pressure. Most participants appeared to believe the feedback they received, though formal measures of credibility and acceptance of feedback may help to clarify the feedback effects observed.

As a preliminary investigation, the current study measured a composite of possible cognitive and affective reactions to feedback. Other affective reactions (e.g., changes in mood) and behavioural reactions (e.g., effects on goal-setting) were not examined, though studies have shown them to be important influences on feedback response (Bodroža, 2011; Renn & Fedor, 2001). Inclusion of measures of emotional responses or mood states, and of behavioural responses (e.g., goal-setting or behavioural indicators of effort) will be useful for identifying causal mechanisms of positive feedback-induced change.

Lastly, the feedback process involved presenting participants with their feedback graph and engaging in a brief standardised discussion to encourage
processing of the information. This provided participants with the opportunity to generate attributions for their progress, but these attributions were not systematically assessed. Attributions of feedback can sometimes have greater impact on subsequent thoughts and actions than the actual outcomes of success or failure (Hattie & Timperley, 2007). Some participants may have attributed their progress (or lack thereof) to their own ability and efforts, while others may have attributed progress to the task or to chance. This is likely to influence how each participant responded to the feedback, and may minimise effects resulting from the progress status manipulation. Measurement of attributions thus seems to be an important step for validating experimental manipulations of feedback.

Conclusions

Our study of feedback factors, individual differences, and individuals’ responses to feedback suggest that these variables are intricately linked, but to varying degrees, mirroring the extensive variability in feedback effectiveness. Furthermore, it seems clear that it is not just the way that feedback is delivered, but also the way that feedback is received and interpreted, that contributes to the effectiveness of feedback interventions. A more thorough examination of the internal cognitive-affective change processes induced by provision of feedback may elucidate the bridging mechanisms between feedback provision and outcomes.
Patients’ self-esteem as a moderator of response to feedback about progress in psychotherapy

The prevention of treatment failure is a paramount goal for both therapists and researchers. Traditional assessment of patient functioning at pre- and post-treatment fails to detect patients who are at risk of treatment failure in a timely manner. Alternatively, progress monitoring and provision of feedback to patients and therapists provides a viable means of achieving this goal, as it enables real-time detection and remediation of at-risk patients (Howard, Moras, Brill, Martinovich, & Lutz, 1996; Kazdin, 2008; Lambert, 2011). Subsequent clinical trials across various treatment settings and patient groups have demonstrated that providing progress feedback enhances rates of improvement and lowers rates of deterioration for patients identified as not-on-track (De Jong, Van Sluis, Nugter, Heiser, & Spinhoven, 2012; Newnham, Hooke, & Page, 2010b; Shimokawa, Lambert, & Smart, 2010).

Despite these promising findings, there is substantial variability in the effects of feedback provision that warrant further attention. For example, one meta-analysis suggested that providing feedback to both patients and therapists was more effective (Knaup, Koesters, Schoefer, Becker, & Puschner, 2009), while another indicated no difference in outcomes compared to providing feedback to therapists alone (Shimokawa et al., 2010). De Jong et al. (2014) also found that, despite no significant effect on eventual outcomes, providing feedback to therapists and patients had larger positive effects on patients’ rate of change than providing feedback to therapists alone, particularly for patients receiving longer-term therapy. Sharing feedback with patients may be clinically useful given that patients themselves...
complete the progress measures, and discussing the feedback may promote collaborative decision-making and increase patient engagement (De Jong et al., 2014; Rise, Eriksen, Grimstad, & Steinsbekk, 2012; Stein, Kogan, Hutchison, Magee, & Sorbero, 2010; Yates, 2012). However, if we are to share feedback with patients, we need to understand how different patients may respond to the feedback.

Indeed, feedback effects appear to be mixed for some subgroups of patients. For patients who are on-track, studies have failed to find any feedback effects (Lambert, Whipple, et al., 2001; Lambert et al., 2002; Newnham et al., 2010b). Despite this, a meta-analysis by Shimokawa et al. (2010) revealed significant, albeit less pronounced, feedback benefits for on-track patients. Byrne, Hooke, Newnham, and Page (2012) also observed that feedback to inpatients, who were on-track, was associated with reduced rates of re-admission at six months post-treatment. A second observation is that, despite receiving feedback, a substantial proportion of not-on-track patients still fail to attain a satisfactory outcome when they leave therapy (Lambert et al., 2002). As feedback did not help to minimise deterioration for some patients, Shimokawa and colleagues (2010) posited that feedback may inhibit outcome enhancement under certain circumstances. A recent trial also observed that providing feedback to some groups of patients (specifically, patients diagnosed with Borderline Personality Disorder, and Personality Disorder Not Otherwise Specified) did not improve outcomes, and was even somewhat harmful initially (K. de Jong, personal communication, November 19, 2013). It is thus possible that feedback may be unhelpful for some patients, although studies to date have not formally identified or examined this critical subgroup.

To ensure that feedback interventions pose no harm to patients, it is vital to understand why feedback improves outcomes for some but not others. Effective
interventions require recognition of not just the presenting problems, but also the influence of individual patient characteristics (Norcross & Wampold, 2011). As such, examining individual patient characteristics may shed some light on why patients may respond differently to feedback.

**Individual Differences in Feedback Response**

Self-esteem (i.e., one’s global sense of self-worth) has been found to have an important influence on how individuals respond to feedback. For example, Shrauger and Rosenberg (1970) observed that participants with high self-esteem performed better following success feedback whereas participants with low self-esteem performed more poorly following failure feedback. Brown (2010) also found that participants with high self-esteem reported less emotional distress after receiving negative feedback compared to participants with lower self-esteem. These findings led to the general conclusion that high self-esteem enhances the effects of positive feedback and buffers against detrimental effects of negative feedback (Brown, 2010; Shrauger & Rosenberg, 1970).

With self-esteem reflecting one’s personal evaluation of self-worth, stimuli that draw attention to oneself and foster internal attributions for negative events can lead to unhelpful responses. Particularly for individuals with low self-esteem, failure feedback that elicits negative self-appraisals may lead them to give up on the task to avoid further negative feedback. Indeed, Kluger and DeNisi (1996) found that feedback that brought attention to oneself rather than to the task, and feedback that threatened self-esteem, reduced the otherwise positive benefits on outcomes. However, further research suggests that the relationship between self-esteem and feedback response is not always positive (Ashford, Blatt, & VandeWalle, 2003; vanDellen, Campbell, Hoyle, & Bradfield, 2011). Instead, this relationship may also
be affected by the stability of self-esteem (Seery, Blascovich, Weisbuch, & Vick, 2004), and how feedback informs the self-goals that are salient to the feedback recipient (Baumeister & Tice, 1985; Kluger & DeNisi, 1996). In an example of the latter, Bernichon, Cook, and Brown (2003) asked pairs of participants to engage in structured conversation, then write a paragraph each on the positive and negative indicators of their partner’s social competence. Participants were then asked to select which feedback evaluation they would prefer to receive. The authors found that individuals with high self-esteem tended to choose feedback that matched their self-views, even if the feedback was negative. In contrast to this self-verification motive, individuals with low self-esteem tended to seek positive feedback that indicated social competence, regardless of their self-views, thus suggesting a self-protection motive. Despite the various competing accounts for individual differences in feedback response, there is general consensus that self-esteem plays an important role, and may provide a potential explanation for the observed variability in patient responses to feedback.

**Present Study**

The current study aimed to investigate whether self-esteem moderates the effect of feedback on treatment outcomes. Treatment outcome was defined as patients’ levels of symptoms and wellbeing at post-treatment, as factor analyses have shown psychological distress and wellbeing to be two distinct, correlated factors within a higher-order mental health construct (Dyer, Hooke, & Page, 2014; Massé et al., 1998; Veit & Ware, 1983). Additionally, Newnham and colleagues (2010b) found that providing feedback on wellbeing significantly reduced patients’ depression symptoms, but did not improve wellbeing. This was inconsistent with previous studies showing direct improvements in the outcome measure when the
same measure was used to provide feedback (Shimokawa et al., 2010). Newnham and colleagues (2010b) posited that wellbeing may be less susceptible to feedback effects, show a slower rate of change than symptoms, or may be restricted in range as a ceiling effect was observed. Therefore, the present study included both measures to clarify the observed discrepancies in feedback response.

Previous feedback trials have consistently observed that feedback provision (i.e., feedback versus no feedback) interacts with patients’ progress status (i.e., on-track versus not-on-track) to influence treatment outcomes (De Jong et al., 2014; De Jong et al., 2012; Newnham et al., 2010b; Shimokawa et al., 2010). Incorporating the variable of self-esteem as moderator, the present study hypothesised that there would be a three-way interaction between feedback provision, progress status, and patients’ self-esteem. Follow-up analyses were then conducted for not-on-track and on-track groups separately to examine whether self-esteem may partially account for the differential effectiveness of not-on-track and on-track feedback. No specific predictions were made about the direction of the moderation due to the inconsistent findings for self-esteem in the existing literature, and because this was the first study to our knowledge to examine self-esteem as a moderator of feedback in clinical settings.

Method

Participants

Participants consisted of 2,130 consecutive patients who completed an intensive two-week cognitive-behaviour therapy (CBT) group program at a private psychiatric hospital in Western Australia. Patients could either complete the program as an inpatient \( (n = 764) \) or as a day-patient (that is, a patient attending the hospital for each day of treatment; \( n = 1366 \)), a decision determined by the patient’s treating
psychiatrist in discussion with the patient. Patients’ ages ranged from 16 to 82 years ($M = 39.6$, $SD = 13.1$), and 61% of the sample were female. Each patient was diagnosed by their treating psychiatrist according to ICD-10-AM criteria (National Centre for Classification in Health Publications, 2002), and primary diagnoses consisted mostly of mood (64.1%), anxiety (26.9%), and substance use (3.5%) disorders. The investigation was carried out in accordance with the Declaration of Helsinki. The University of Western Australia Human Research Ethics Committee approved the study protocol, and patients provided informed consent as part of routine admission procedures at the hospital.

**Materials**

**Rosenberg Self-Esteem Scale.** The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1979) is a 10-item self-report questionnaire that measures global self-esteem. Rated on a four-point Likert scale, higher scores indicate higher self-esteem. The RSES exhibited high internal consistency ($\alpha = 0.91$), and correlated negatively with measures of depression, anxiety, and stress, when administered to a large community sample (Sinclair et al., 2010). Amongst individuals experiencing severe mental illness (e.g., psychotic disorders, severe depression), the RSES also showed high internal consistency ($0.87 < \alpha < 0.90$), and stable test-retest reliability of .87 over a two-week period (Torrey, Mueser, McHugo, & Drake, 2000).

**Wellbeing Index.** The World Health Organization’s Well-being Index (WHO-5; Bech, Gudex, & Johansen, 1996) consists of five self-report items assessing levels of positive wellbeing (e.g., feeling calm and relaxed). To enable daily administration, each item is rated in relation to levels of wellbeing experienced “over the last day” instead of over the previous two weeks. The items are rated from 0 (“at no time”) to 5 (“all of the time”), with higher total scores indicating greater
wellbeing. The Wellbeing Index exhibited good internal consistency ($\alpha = .89$ at admission) within a psychiatric inpatient setting (Newnham, Hooke, & Page, 2010a). It also correlated positively with measures of positive mental health functioning ($rs \geq .54$), and negatively with measures of depression, anxiety, and stress ($rs \leq -.40$).

**Daily Index-5.** The Daily Index-5 (DI-5; Dyer et al., 2014) is a five-item self-report measure of affective psychological distress (e.g., feeling anxious). Similar to the Wellbeing Index, items referred to the frequency of symptoms experienced “over the last day”, with ratings from 0 (“at no time”) to 5 (“all of the time”). Higher DI-5 scores (referred to as “symptom scores”) thus indicated greater levels of symptomatic distress. The DI-5 showed high internal consistency ($\alpha > .80$) in both clinical and non-clinical samples, and satisfactory test-retest reliability over a two-day period within the clinical sample ($r > .74$). It also correlated positively with measures of depression, anxiety and stress ($r = .70$), and negatively with the Wellbeing Index ($r = -.60$; Dyer et al., 2014).

**Procedure and Trial Design**

Patients completed the CBT group program in closed groups of six to eight members, led by two co-therapists who were either clinical psychologists or occupational therapists. The program comprised four therapy sessions from 9am to 5pm each day over 10 consecutive working days, covering a range of cognitive and behavioural techniques including modification of dysfunctional core beliefs; behavioural experiments; self-esteem exercises; and homework tasks. The program has been shown to be effective in reducing scores on measures of depression and anxiety within a diagnostically heterogeneous patient sample, with treatment gains maintained at six-month follow-up (Manning, Hooke, Tannenbaum, Blythe, & Clarke, 1994; Page & Hooke, 2003).
Completion of progress monitoring measures. In accordance with the hospital’s ongoing quality assurance initiative, patients completed the RSES as part of a battery of routine measures on Day 1 and Day 10 of the treatment program. Patients were invited to complete the DI-5 and Wellbeing Index electronically every morning via touch-screens located in the therapy rooms (see Newnham, Doyle, Sng, Hooke, & Page, 2012 for further information about the use of touch-screens for patient monitoring). Patients who missed completing the measures that day were provided with a reminder, but participation was entirely voluntary. De-identified data were subsequently made available for analyses.

The monitoring measures and progress feedback were implemented based on a historical cohort design. From here on, patients will be described as being members of the Wellbeing cohort (who completed the Wellbeing Index on alternate days, prior to introduction of the DI-5 at the hospital) and Symptom cohort (patients completed the DI-5 and Wellbeing Index daily, and received feedback on both measures). Within the two cohorts, patients were either in the no feedback condition (i.e., completed the measure but did not receive feedback till Day 10 of treatment) or feedback condition (i.e. received feedback on Days 5 and 10 of treatment).

Defining expected trajectories. Halfway through the CBT group program (i.e. Day 5), and at the end (i.e. Day 10), progress feedback charts were generated for each patient (Figure 3.1). Each chart showed a graph plotting daily wellbeing scores (for the Wellbeing cohort) or separate graphs plotting wellbeing and symptom scores (for the Symptom cohort). The patient’s scores (thick blue line in Figure 3.1) were mapped against two lines representing the upper and lower boundaries of an expected treatment response curve (thin blue lines). Each patient’s trajectory was derived via nearest neighbour matching (see Newnham et al., 2010b for a detailed
description). To generate these curves, a cohort of previous patients undertaking the program was divided into five equal-sized groups based on their wellbeing scores on Day 1. The best-fitting functions (i.e., log-linear curves) were then plotted for each of the five levels of severity. For each function, upper and lower boundaries of half a standard deviation either side of the mean score of each measurement point were then calculated to produce the final trajectories of expected treatment response. A similar procedure was used to develop the symptom trajectories (thin yellow lines in Figure 3.1), but only four groups were necessary to model expected treatment responses across the different levels of severity.

![Figure 3.1. Feedback graph provided to hypothetical patient displaying their wellbeing (top) and symptom (bottom) scores.](image)

The comparison of actual scores to the expected trajectories provided the definition for progress status. Based on previous findings from Newnham and
colleagues (2010a, 2010b), patients were defined as not-on-track if their wellbeing scores on Day 1 fell below 12 (i.e., within the unwell range at admission to the CBT program), and scores at Day 5 fell below the lower boundary of the expected trajectory. For the symptom scores, patients were defined as not-on-track if their symptom scores on Day 1 were above 6 (Dyer et al., 2014), and their scores at Day 5 remained above the upper boundary of the expected trajectory.

**Delivery of progress feedback.** Therapists were provided with some guidelines on delivering feedback, but no formal structure was defined. Generally, the therapist explained what the separate graphs indicated, then provided patients with the opportunity to discuss their progress within the group. Common prompts used by therapists included encouraging patients to identify patterns in their scores, and how the changes may have been associated with different events or actions over the past week. Patients may also have been encouraged to discuss areas for potential improvement and generate ideas with their therapist (e.g., assertiveness training, scheduling pleasant activities, and homework tasks).

**Statistical Design**

To evaluate treatment and feedback effects on patients’ wellbeing, symptoms, and self-esteem, $2 \times 2 \times 2$ mixed-design ANOVAs were conducted with time (pre-treatment, post-treatment) as a within-subjects factor, and feedback (feedback, no feedback) and progress status (on-track, not-on-track) as between-subjects factors. The primary research question was whether self-esteem moderated the effect of feedback on treatment outcomes. Given that studies have previously found an interaction between feedback and progress status (De Jong et al., 2012; Newnham et al., 2010b; Shimokawa et al., 2010), we expected to find a three-way interaction between feedback, progress status and self-esteem. To address this,
moderated hierarchical linear regression analyses were conducted for the Symptom and Wellbeing cohorts separately to predict post-treatment DI-5 and Wellbeing Index scores respectively. All individual variables entered into the regression models were standardised. The corresponding pre-treatment score was included in Step 1 of the model to control for severity at intake. Feedback (coded dichotomously as feedback versus no feedback), progress status (on-track versus not-on-track) and pre-treatment self-esteem scores were included at Step 2. The two-way interaction terms were entered in Step 3, and finally, in Step 4, the three-way interaction term (product of the standardised feedback, progress status, and pre-treatment self-esteem variables) was included. Regression models were also specified for on-track and not-on-track patients separately to investigate whether the influence of self-esteem differed between the two groups.

**Results**

Data from patients who withdrew from the treatment program (n = 195) and patients who did not complete any monitoring measures (n = 39) were excluded from further analyses. Patients who withdrew from treatment were significantly younger (35.9 vs. 40.0 years) and had significantly lower self-esteem scores than patients who completed treatment, though the latter reflected a difference of only 1.2 points. Analysing by Symptom and Wellbeing cohort, patients who withdrew also reported more symptoms (10.36 vs. 8.36, p < .01), and lower wellbeing (6.99 vs. 8.29, p = .05) respectively, than patients who completed treatment. There were no gender differences between completers and non-completers, $\chi^2(1) = 0.21$, $p = .65$.

**Missing Values and Data Imputation**

A missing values analysis was conducted with the remaining dataset to investigate patterns of missing values amongst patients’ symptom, wellbeing and
Self-esteem as Moderator

self-esteem scores at pre- and post-treatment, and their symptom and wellbeing scores on Day 5 of treatment (as Day 5 scores were required to determine progress status). Percentages of missing data for the aforementioned variables ranged from 2.1 to 9.3% for the Symptom cohort, and from 1.5% to 20.9% for the Wellbeing cohort. T-tests and chi-squared tests indicated no systematic differences in age, gender, or pre-treatment wellbeing scores between patients with complete data and those with missing data. Additionally, while patients who had missing data ($M = 9.55, SD = 5.99$) tended to have higher pre-treatment symptom scores relative to patients who had complete data ($M = 8.18, SD = 5.46$), $t(1022) = -2.72, p = .01$, this difference was small ($d = 0.24$). Based on anecdotal evidence from therapists and patients, common reasons for missing data included forgetting to complete the measure, and absence from group due to physical illness.

As indicated by Little’s MCAR tests, the data were missing completely at random for the Symptom cohort, $\chi^2(114) = 103.02, p = .76$, and for the Wellbeing cohort, $\chi^2(80) = 62.36, p = .93$. The Expectation Maximization (EM) estimation method was subsequently used to impute missing data. Descriptive statistics for symptom, wellbeing, and self-esteem scores at pre- and post-treatment for the two cohorts are displayed in Table 3.1 and Table 3.2.

Evaluating Treatment and Feedback Effects

Four $2 \times 2 \times 2$ mixed-design ANOVAs were conducted to examine pre- to post-treatment changes in wellbeing, symptom, and self-esteem scores. For the Symptom cohort (Table 3.1), not-on-track patients had significantly higher symptom scores, $F(1, 1049) = 420.10, p < .001, \eta_p^2 = .29$, and lower self-esteem scores, $F(1,
1049) = 171.86, \( p < .001, \eta_p^2 = .14 \), than on-track patients, suggesting validity of the progress status classifications. Patients showed a significant reduction in symptoms, \( F(1, 1049) = 455.97, p < .001, \eta_p^2 = .30 \), and increased self-esteem, \( F(1, 1049) = 631.81, p < .001, \eta_p^2 = .38 \), at the end of treatment. There was also a significant interaction between time and progress status, \( F(1, 1049) = 10.09, p < .01, \eta_p^2 = .01 \) – not-on-track patients showed greater improvements in symptoms over time relative to on-track patients. This is not surprising given that symptom scores for on-track patients indicated a floor effect. Conversely, provision of feedback did not have an effect on patients’ symptoms, \( F(1, 1049) = 1.53, p = .22, \eta_p^2 = .001 \), or self-esteem, \( F(1, 1049) = 0.48, p = .49, \eta_p^2 = .00 \). All two-way and three-way interactions were also not significant, \( ps \geq .20 \).

Table 3.1.

Mean (SD) of pre- and post-treatment symptom and self-esteem scores for the Symptom cohort, categorised by feedback and progress status conditions.

<table>
<thead>
<tr>
<th></th>
<th>No feedback (( n = 386 ))</th>
<th>Feedback (( n = 667 ))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On-track (( n = 313 ))</td>
<td>Not-on-track (( n = 73 ))</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>7.07 (5.01)</td>
<td>13.98 (5.04)</td>
</tr>
<tr>
<td>Post-treatment</td>
<td>3.33 (3.35)</td>
<td>8.55 (5.84)</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>24.03 (5.23)</td>
<td>19.26 (4.14)</td>
</tr>
<tr>
<td>Post-treatment</td>
<td>29.47 (5.26)</td>
<td>24.69 (5.34)</td>
</tr>
</tbody>
</table>

\( ^a \) Non-transformed scores are reported here.

The pattern of treatment and feedback effects was similar for the Wellbeing cohort. On-track patients generally had higher wellbeing, \( F(1, 839) = 186.19, p < \)
Self-esteem as Moderator

.001, $\eta_p^2 = .18$, and self-esteem scores, $F(1, 839) = 90.17, p < .001, \eta_p^2 = .10$, compared to not-on-track patients. Patients demonstrated significant improvements in wellbeing, $F(1, 839) = 458.74, p < .001, \eta_p^2 = .35$, and self-esteem, $F(1, 839) = 720.13, p < .001, \eta_p^2 = .46$, from pre- to post-treatment. There was also a significant interaction between time and progress status, $F(1, 839) = 15.03, p < .001, \eta_p^2 = .02$, but unlike the Symptom cohort, on-track patients demonstrated greater improvements in wellbeing from pre- to post-treatment relative to not-on-track patients. However, providing feedback did not have a significant effect on wellbeing, $F(1, 839) = 1.18, p = .28, \eta_p^2 = .001$, or self-esteem scores, $F(1, 839) = 1.86, p = .17, \eta_p^2 = .002$, when compared to not providing feedback. None of the two-way or three-way interactions with feedback were significant for wellbeing or self-esteem, $ps > .14$.

Table 3.2.

*Mean (SD) of pre- and post-treatment wellbeing and self-esteem scores for the Wellbeing cohort, categorised by feedback and progress status conditions.*

<table>
<thead>
<tr>
<th></th>
<th>No feedback (n = 424)</th>
<th>Feedback (n = 419)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>On-track (n = 323)</td>
<td>Not-on-track (n = 101)</td>
</tr>
<tr>
<td>Wellbeing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>9.66 (5.20)</td>
<td>5.74 (3.19)</td>
</tr>
<tr>
<td>Post-treatment</td>
<td>14.58 (5.05)</td>
<td>9.49 (4.76)</td>
</tr>
<tr>
<td>Self-esteem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment</td>
<td>24.29 (5.40)</td>
<td>20.90 (4.99)</td>
</tr>
<tr>
<td>Post-treatment</td>
<td>29.89 (4.89)</td>
<td>25.34 (5.08)</td>
</tr>
</tbody>
</table>
Examining Self-esteem as Moderator of Feedback Response

Provision of feedback did not have a significant effect on post-treatment wellbeing or symptom scores, but the planned moderated regression analyses were conducted to investigate whether feedback effects may vary across different levels of self-esteem. Pre- and post-treatment wellbeing scores were normally distributed, whereas square root transformations were applied to pre- and post-treatment symptom scores to minimise negative skew. No outliers were identified (all scores were within 3.1 SD from the mean).

Symptom cohort. The first analysis examined whether self-esteem interacted with feedback and progress status to influence post-treatment symptom scores, after controlling for pre-treatment symptom scores. As shown in Table 3.3, pre-treatment symptom scores significantly predicted, and accounted for 30% of the variance in, post-treatment symptom scores (Step 1). Addition of the individual feedback, pre-treatment self-esteem, and progress status variables in Step 2 accounted for 6% additional variance, $F(3, 1048) = 32.22, p < .001$, but further inclusion of the two-way interaction terms in Step 3 did not significantly increase the amount of variance accounted for by the model, $F(3, 1045) = 1.10, p = .35$. Finally, the three-way interaction between feedback, pre-treatment self-esteem, and progress status included in Step 4 significantly predicted post-treatment symptom scores over and above pre-treatment symptom scores, accounting for an additional 0.4% of the variance. The overall moderation model accounted for 37% of the variance in post-treatment symptom scores, $F(8, 1044) = 76.19, p < .001$. 
Table 3.3.

**Moderated hierarchical linear regression of post-treatment symptom scores** for all patients in the Symptom cohort (n = 1053).

<table>
<thead>
<tr>
<th>Step</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>R²</th>
<th>R² Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>.00</td>
<td>.03</td>
<td></td>
<td>.30**</td>
<td>-</td>
</tr>
<tr>
<td>Pre-treatment symptom score a</td>
<td>.55</td>
<td>.03</td>
<td>.55***</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.36***</td>
</tr>
<tr>
<td>Constant</td>
<td>.00</td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment symptom score a</td>
<td>.37</td>
<td>.03</td>
<td>.37***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback condition</td>
<td>.01</td>
<td>.03</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment self-esteem score</td>
<td>-.14</td>
<td>.03</td>
<td>-.14***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progress status</td>
<td>-.23</td>
<td>.03</td>
<td>-.23***</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.37***</td>
</tr>
<tr>
<td>Constant</td>
<td>-.01</td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment symptom score a</td>
<td>.37</td>
<td>.03</td>
<td>.37***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback condition</td>
<td>.01</td>
<td>.03</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment self-esteem score</td>
<td>-.14</td>
<td>.03</td>
<td>-.14***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progress status</td>
<td>-.21</td>
<td>.03</td>
<td>-.21***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback × self-esteem</td>
<td>-.01</td>
<td>.03</td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback × progress status</td>
<td>-.03</td>
<td>.03</td>
<td>-.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-esteem × progress status</td>
<td>.04</td>
<td>.03</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.37***</td>
</tr>
<tr>
<td>Constant</td>
<td>-.02</td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-treatment symptom score a</td>
<td>.37</td>
<td>.03</td>
<td>.37***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Previous studies have shown that feedback effects vary between not-on-track and on-track patients (Newnham et al., 2010b; Shimokawa et al., 2010). Thus, follow-up moderated regression analyses were conducted for separate not-on-track and on-track groups to investigate whether individual differences in self-esteem may account for some of the variability in feedback response. The analyses showed a significant interaction between feedback and self-esteem for not-on-track patients (Table 3.4), but not for on-track patients. For not-on-track patients, feedback, pre-treatment self-esteem scores, and the interaction between both variables, significantly predicted post-treatment symptom scores over and above pre-treatment symptom scores. The interaction between feedback and self-esteem accounted for an additional 2% of the variance, and the overall moderation model explained 25% of the variance in post-treatment symptom scores, $F(4, 188) = 15.68, p < .001$.

Conversely, for on-track patients, only pre-treatment symptom and self-esteem...
scores significantly predicted post-treatment symptom scores; feedback and its interaction with self-esteem were non-significant predictors.

Table 3.4.

*Moderated hierarchical linear regression of post-treatment symptom scores* \(^a\) *for not-on-track patients in the Symptom cohort (n = 193).*

<table>
<thead>
<tr>
<th>Step</th>
<th>B</th>
<th>SE</th>
<th>(\beta)</th>
<th>(R^2)</th>
<th>(R^2) Δ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td>.21***</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>.31</td>
<td>.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-treatment symptom score (^a)</td>
<td>.65</td>
<td>.09</td>
<td>.46***</td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td>.23***</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>.29</td>
<td>.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-treatment symptom score (^a)</td>
<td>.55</td>
<td>.10</td>
<td>.39***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feedback condition</td>
<td>.07</td>
<td>.06</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-treatment self-esteem score</td>
<td>-.16</td>
<td>.08</td>
<td>-.15*</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
<td>.25***</td>
<td>.02*</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>.29</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-treatment symptom score (^a)</td>
<td>.54</td>
<td>.10</td>
<td>.38***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feedback condition</td>
<td>.18</td>
<td>.08</td>
<td>.20*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pre-treatment self-esteem score</td>
<td>-.18</td>
<td>.08</td>
<td>-.17*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feedback × self-esteem</td>
<td>.15</td>
<td>.07</td>
<td>.18*</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* All scores refer to standardised z-scores.

\(^a\) Transformed scores (square-root).

* \(p < .05\). ** \(p < .01\). *** \(p < .001\).*
As illustrated in Figure 3.2, providing symptom feedback had no effect on post-treatment symptom scores for patients with lower levels of self-esteem, when compared to no feedback. Conversely, patients with higher levels of self-esteem had lower post-treatment symptom scores in the feedback condition compared to the no-feedback condition.

*Figure 3.2. Effect of providing feedback on post-treatment symptom scores as moderated by pre-treatment self-esteem scores for patients identified as not-on-track (increasingly negative scores indicate lower post-treatment symptom scores).*

**Wellbeing cohort.** For the Wellbeing cohort ($n = 843$), pre-treatment wellbeing and self-esteem scores, and progress status, significantly predicted post-treatment wellbeing scores. Neither the two-way interactions nor the three-way interaction between feedback, pre-treatment self-esteem, and progress status, were significant predictors. Examining the not-on-track and on-track patient groups separately, similar results were observed. Pre-treatment wellbeing and self-esteem scores were the only significant predictors of post-treatment wellbeing scores.
Discussion

The aim of this study was to investigate the role of self-esteem in the relationship between feedback and treatment outcomes in a clinical sample. A significant three-way interaction between feedback, pre-treatment self-esteem scores, and progress status was observed for symptom scores as hypothesised, but not for wellbeing scores. Follow-up analyses further indicated that not-on-track patients showed differential responses to symptom feedback based on whether they had high or low self-esteem. Specifically, provision of not-on-track feedback did not affect treatment outcomes for patients with lower levels of self-esteem. However, patients with higher self-esteem who received not-on-track feedback subsequently had higher symptom scores at post-treatment compared to patients who did not receive feedback. In other words, providing not-on-track feedback did not appear to be helpful for patients with higher self-esteem. In line with Shimokawa et al.’s (2010) observation that feedback may inhibit outcomes enhancement for some patients, the present pattern of findings identifies patients with high self-esteem as a possible subgroup of patients to which this statement may apply. Our finding that patients with high self-esteem did not respond well to not-on-track feedback also contradicted previous findings that high self-esteem buffers against negative feedback (Brown, 2010; Shrauger & Rosenberg, 1970). It may be important to note that previous studies have largely examined non-clinical samples, and it is not clear whether self-esteem effects are invariant between clinical and non-clinical samples.

Based on the available research, there are a few possible explanations for our finding. Baumeister and Tice (1985) proposed that individuals with high self-esteem expect to excel, and hence negative feedback would be surprising to them. On the other hand, individuals with low self-esteem do not expect to do well, and hence
negative feedback has no effect or may even motivate them. Additionally, feedback conveying that one is not doing well in treatment may present a perceived threat to oneself (or to one’s self-esteem). Consequently, not-on-track feedback may reduce patients’ motivation to engage in therapy, lower expectations of change, or even lead to rejection of the feedback (Riemer, Rosof-Williams, & Bickman, 2005). This enables protection of one’s self-image from further negative feedback. There may also be other variables linked with self-esteem that contribute to the observed effect but were not accounted for in the present investigation. For example, individuals with high self-esteem may make external attributions for not-on-track feedback and hence not exercise personal agency to engage in activities that may help to reduce their symptoms (Brown, 2010).

We also found that self-esteem did not influence responses of on-track patients receiving symptom feedback, or responses of patients receiving wellbeing feedback regardless of their progress status. The lack of significant main effects of feedback, or an interaction between feedback and self-esteem, for on-track patients was consistent with the clinical feedback literature (De Jong et al., 2012; Lambert, Whipple, et al., 2001; Newnham et al., 2010b). It is suggested that on-track feedback simply confirms a patient is doing well, whereas not-on-track feedback signals a need to modify or evaluate the treatment plan, thus has greater potential to impact treatment outcomes (Sapyta, Riemer, & Bickman, 2005). Despite this, prior studies (Byrne et al., 2012; Shimokawa et al., 2010) observed that on-track patients can benefit from feedback as well. Further research may be required to identify conditions under which on-track feedback augments treatment outcomes. Practically, a possible application of on-track feedback is to explore with patients what works for
them in reducing symptoms and improving wellbeing, which may be valuable in maintenance and relapse-prevention stages of treatment.

The present study also attempted to clarify the differential responses of symptom and wellbeing measures following clinical feedback. Replicating Newnham and colleagues’ findings (2010b), we found a significant interaction between feedback, progress status, and self-esteem for symptom scores, but not for wellbeing scores. The present results showed consistent patterns of treatment and feedback effects for the symptom and wellbeing measures, suggesting that wellbeing measures have similar capacity to reflect change as symptom measures. Follow-up studies may be able to clarify whether the lack of feedback effects on wellbeing are due to reduced susceptibility to feedback effects, or whether changes in wellbeing occur at a slower rate compared to symptoms. The latter explanation would be in keeping with Howard and colleagues’ conceptualization of different phases of change in psychotherapy (Howard, Lueger, Maling, & Martinovich, 1993). It may also be interesting to investigate whether therapists and patients interpret symptom and wellbeing feedback differently, or attach different values of importance to them. To speculate, it is possible that therapists and patients prioritise symptom remediation before improvement of wellbeing, and thus they may view symptom information as more salient than wellbeing information.

Limitations

The results from the current study provide some support for the importance of considering individual differences when delivering feedback to patients. While there are few well-established clinical recommendations for delivering feedback, to the extent that the present findings are generalizable, therapists may need to be particularly sensitive about delivering not-on-track feedback to patients, particularly
if the patient has high self-esteem. However, as this study is one of the first attempts to explore the role of self-esteem in the relationship between feedback and treatment outcomes in a real-world clinical sample, a few limitations should be noted. Our study examined the interaction between feedback and self-esteem within a unique two-week group treatment program, where feedback was delivered once halfway through the treatment. Previous studies typically delivered feedback at every session, and correspondingly, Krenn and colleagues (2013) posited that feedback and self-esteem effects may be diluted if feedback is delivered on a single occasion. Thus it would be worth investigating whether findings from the present study extend to individual psychotherapy and to settings where feedback is provided more frequently (e.g., weekly or fortnightly).

The group feedback process was also likely to differ from feedback delivered in an individual therapy setting. Practical differences such as having less time for each patient to discuss their feedback may have influenced the extent to which patients can work collaboratively with their therapist in response to the feedback. The group setting may also have elicited social comparison processes that influenced interpretation and subsequent use of the feedback. In an identical group therapy setting to that of the present study, Parker, Page, and Hooke (2013) observed that individual patient’s self-esteem interacted with collective group self-esteem to influence patient outcomes. Specifically, patients with high self-esteem demonstrated better outcomes when they completed therapy in low self-esteem groups rather than high self-esteem groups. Feedback aims to highlight one’s progress (or lack thereof), and when delivered in a group setting, some patients may focus on self-improvement, whilst others may compare their progress to other group members.
This might impact on feedback response and outcome. Thus, differences in the content and process of group versus individual feedback warrant closer examination.

A third limitation of the study was that the ways in which therapists and patients used the feedback were not closely controlled or monitored. Thus we were unsure as to how therapists delivered and discussed feedback, and the consistency between groups. There has been growing research interest in how therapists use feedback and the types of therapist-patient discussions that arise from feedback (Lutz, Böhnke, Köck, & Bittermann, 2011; Sundet, 2012; Yates, 2012). As we will discuss in the next chapter, the role of the feedback conversation provides a potential avenue for further exploration of clinical feedback mechanisms.

Conclusions

The current study found that patients with high self-esteem showed smaller reductions in symptom scores after receiving not-on-track feedback, suggesting that they did not benefit from the provision of progress feedback. To achieve a better understanding of how feedback works and to generate clinical recommendations about how to best tailor feedback to match individual patient characteristics, two avenues of investigation are worthy of consideration. The first relies on developing a stronger theoretical foundation for clinical feedback interventions, as there is a lack of well-established feedback theories, let alone one that can be applied to therapeutic work (De Jong et al., 2012; Newnham & Page, 2007). A sound theoretical understanding of how clinical feedback works will enable more specific guidelines about how to use the feedback effectively to bring about positive change. The second avenue involves qualitative studies of how therapists tailor feedback to their patients and empirical investigations of how these processes relate to treatment outcomes. This is a promising area for therapists to contribute their knowledge and expertise,
and provide better insight about the decision-making processes guiding their feedback use. Ultimately, both theoretical and practical approaches will contribute to refining methods for preventing treatment failure, and improving outcomes for patients receiving psychotherapy.
SECTION THREE

An application of findings to the development of clinical feedback graphs
Foreword

The most basic feedback involves presenting a description of progress or performance (Kluger & DeNisi, 1996). However, it has been argued that the ensuing elaboration of the feedback is a major determinant of how the recipient subsequently uses the information (Sapyta, Riemer, & Bickman, 2005; Shute, 2008). Recent studies have indicated that when feedback is available, therapists often reported sharing the results with their clients, as a way of integrating the information into therapy (Lutz, Böhnke, Köck, & Bittermann, 2011; Yates, 2012). This highlights the potential value of feedback elaboration towards enhancing treatment outcomes.

Findings from the previous chapters suggest that the way feedback is presented and discussed may impact on how individuals respond to the information. In Chapter 2, we found that feedback factors such as progress status and referent standards influenced participants’ perceptions of, and subsequent performance on, a relaxation exercise. These effects may have been attributable to the visual presentation itself, and/or the accompanying feedback discussion. We also observed in Chapter 3 that patients’ self-esteem moderated their response to not-on-track symptoms feedback. Again, this suggested that the way feedback is presented can interact with individual-difference characteristics to influence feedback response.

How feedback is delivered and received is a much-needed area of research for furthering the use of clinical feedback systems. The following section demonstrates an example of such an investigation, with specific focus on the graphical presentation of feedback. Findings arising from this section may facilitate practical applications and guide ongoing development of clinical feedback interventions.
Does presentation style matter? Exploring therapists’ perceptions of the utility of feedback graphs depicting progress in psychotherapy

Delivering feedback in a way that yields positive outcomes can be a delicate process, particularly when the feedback implies that performance has not met a standard (Audia & Locke, 2003; Ilgen & Davis, 2000). With clinical feedback, “negative” feedback indicating that a client is not making expected progress (i.e., not-on-track) yields greater therapeutic benefits compared to “positive” feedback indicating that the client is doing well (i.e., on-track; Sapyta, Riemer, & Bickman, 2005). It is proposed that not-on-track feedback is more effective due to its function as an “alarm” signal to therapists, which makes it more likely to prompt re-evaluation and modification of the current treatment (Riemer, Rosof-Williams, & Bickman, 2005; Sapyta et al., 2005). However, despite these potential feedback benefits, some evidence suggests that feedback may be unhelpful for a sub-group of not-on-track clients (Shimokawa, Lambert, & Smart, 2010). Therefore, the dominant explanation that not-on-track feedback is more salient than on-track feedback is not sufficient to account for the variable effects observed in treatment outcomes (Sapyta et al., 2005). It appears that other factors play a part in influencing how clients and/or therapists respond to feedback.

Findings from Chapter 3 suggested that individual differences in clients’ self-esteem may account for some variability in feedback response, as it was observed that providing not-on-track feedback was unhelpful for clients with high self-esteem, and had no impact on treatment outcomes for clients with low self-esteem. In contrast, Brown (2010) found that individuals with low self-esteem were more susceptible than individuals with high self-esteem to experiencing reductions in
feelings of self-worth after receiving negative feedback. Besser, Flett, Hewitt, and Guez (2008) also found that the diminishing effects of negative feedback on self-esteem were more pronounced when individuals felt less confident; on the other hand, receiving positive feedback enhanced performance-specific self-esteem. A possible explanation for the opposite findings in Chapter 3 (that patients with high self-esteem were more affected by not-on-track feedback than patients with low self-esteem) can be derived from Kluger and DeNisi (1996). Their meta-analysis of feedback interventions revealed that feedback effectiveness was moderated by the extent to which the feedback threatened recipients’ self-esteem. Specifically, interventions where feedback was perceived as a threat to self-esteem yielded smaller improvements in task outcomes compared to feedback interventions where perceived self-esteem threat was low. The level of perceived threat was in turn determined by feedback presentation. Delivering feedback in a way that drew attention to the individual’s abilities or traits heightened the level of perceived threat compared to presenting feedback cues that drew attention to the task.

Extending this to clinical feedback, the process of delivering and discussing feedback may, for some clients, be ineffective and attenuate the benefits. The close link between self-esteem and feedback presentation is important to clinical feedback research because there has been a lack of systematic monitoring and control over how therapists use feedback in previous clinical trials, and studies have not presented a uniform type of feedback to clients (Brodey et al., 2005). If we are to deliver feedback more effectively and minimise any harm that feedback may pose to the client, we need to first understand how the feedback is actually used in therapy, as a stepping stone to pinpointing what feedback mechanisms are responsible for bringing about positive (or negative) changes in client outcomes.
The current study thus aimed to explore the link between self-esteem and the way feedback is presented and discussed, and its potential influence on recipient’s response (Ilgen, Fisher, & Taylor, 1979; Shute, 2008). We begin this preliminary exploration by first reviewing a postulated feedback function of facilitating therapist-client dialogue. Second, we will examine how feedback presentation style may be perceived to impact on client’s self-esteem and the possible types of information that emerge in therapeutic discussions.

**Feedback Facilitates Therapist-Client Dialogue**

As we briefly reviewed in the General Introduction, support is growing for the role that feedback has in encouraging therapist-client dialogues about progress and the therapeutic process (Carlier et al., 2012; Sundet, 2012; Unsworth, Cowie, & Green, 2012). Lutz, Böhnke, Köck, and Bittermann (2011; also see Castonguay, Barkham, Lutz, & McAleavey, 2013) conducted a survey with therapists to investigate how they dealt with feedback. These therapists worked within routine outpatient care settings and were participating in a quality assurance monitoring program in collaboration with a health insurance company. Lutz and colleagues found that over 40% of therapists reported discussing the feedback with their client, particularly when the client was not-on-track. Stein, Kogan, Hutchison, Magee, and Sorbero (2010) showed that greater client-reported levels of feedback discussion were positively associated with better client functioning and stronger therapeutic alliance, supporting the value of the conversation arising from the feedback in enhancing therapy outcomes.

Recent qualitative studies with therapists have revealed that therapists use feedback to discuss with their clients about: progress (or lack thereof); client’s experience of therapy; setting therapy goals and prioritising areas of concern;
monitoring goal attainment; evaluating the treatment plan; and collaborative
decision-making about whether to terminate or extend therapy (Norman, Dean,
Hansford, & Ford, 2013; Sundet, 2012; Unsworth et al., 2012; Yates, 2012). These
topics correspond to information that therapists report finding useful from
monitoring measures (Hatfield & Ogles, 2004), suggesting that therapists are able to
extract clinically-useful information from the feedback for discussion with clients.
Furthermore, therapists have reported that they tailor feedback to clients based on
clients’ individual characteristics and presenting problems (Yates, 2012). As
expected, studies have observed that therapists were more likely to choose to modify
treatment when they received deterioration feedback, and less likely to do so with
improvement feedback (Hatfield & Ogles, 2006). Therapists also perceived feedback
as more useful as client’s self-report mood symptoms increased (Brodey et al.,
2005). Correspondingly, the ensuing feedback discussion may differ between clients
who are on-track versus not-on-track, although this has not been formally tested.

**Different Styles of Presenting Clinical Feedback**

A unique feature of clinical feedback presentation is the comparison of the
client’s progress to a statistically-generated expected therapy response to distinguish
not-on-track from on-track progress. One way of generating this expected therapy
response is by comparing the client’s scores to psychometric criteria for achieving
clinically significant change, using calculation methods proposed by Jacobson and
Truax (1991). This method has been employed in a series of studies by Lambert and
colleagues (see Shimokawa et al., 2010), allowing for classification of the client’s
change as recovered, improved, no change, or deteriorated. In their studies, client’s
progress was conveyed through a graph of questionnaire scores plotted across the
therapy sessions. The graph was accompanied by a colour-coded message (white,
green, yellow, or red) that described the client’s progress status (normal, adequate, less than adequate, not making expected progress respectively), and provided recommendations to therapists (e.g., consider termination, shift intervention strategies; Figure 4.1a). Clients who received a red or yellow signal were considered not-on-track. Clients receiving only green or white dots were considered on-track.

Figure 4.1. Examples of feedback graphs that compare client’s scores to (a) clinical significance criteria accompanied by a corresponding colour-coded message (Lambert, Harmon, Slade, Whipple, & Hawkins, 2005), or to (b) a previous cohort of similar clients using expected treatment response trajectories (Newnham et al., 2010b).
In the aforementioned example, the client’s current score is compared to scores from previous sessions – this can be considered as a form of self-referenced or ipsative feedback. Alternatively, expected therapy response curves (trajectories) can be generated by benchmarking the client’s scores against scores of a previous cohort of clients with similar characteristics (Lutz, Martinovich, Howard, & Leon, 2002; Miller, Duncan, Brown, Sorrell, & Chalk, 2006; Newnham, Hooke, & Page, 2010b). This would be considered as norm-referenced or normative feedback. An example of this presentation format was employed by Newnham et al. (2010b), who divided their patient sample into five sub-groups based on level of severity at intake, then plotted the best-fitting functions (log-linear) to derive expected therapy response trajectories for each sub-group (Newnham, Hooke, & Page, 2010a). For each trajectory, upper and lower boundaries of half a standard deviation either side of the mean score for each measurement point were then computed. The client’s scores across the ten-day group therapy program were then mapped against these upper and lower boundaries (Figure 4.1b). A client who began therapy with a score lower than a specific cut-off and whose score on day five of the program deviated from the expected response was thus considered as not-on-track.

Both examples of feedback graphs have been successful in enhancing outcomes for some clients (Newnham et al., 2010b; Shimokawa et al., 2010). However, the application of these graphs may be problematic for clients who make no reliable change over a long period in therapy – their graphs may appear as a “flat line” relative to a sloped expected trajectory, or therapists may constantly receive yellow or red signals despite adopting clinical recommendations. Such a scenario would not be uncommon for many psychiatric inpatients. By way of illustration, it is evident from Figure 4.2a that the typical “dose-response” curve is not found within
an inpatient setting. The graph plots the symptom (Dyer, Hooke, & Page, 2014) and wellbeing (Bech, Gudex, & Johansen, 1996) scores for a group of psychiatric inpatients over three weeks of an admission. Instead of a negatively-accelerating curve, the functions are U-shaped. The reason why the curves inflect is that patients will be discharged from hospital once they are well enough. Thus, the early portion of the curve shows the usual pattern that people improve with treatment, but after a point, the only people remaining in hospital are those who have not (yet) responded.

*Figure 4.2.* (a) Mean symptom and wellbeing scores for all psychiatric inpatients over three weeks of an admission; and (b) wellbeing trajectories for the same inpatients, categorised by increasing lengths of stay.
In Figure 4.2b, the same data for wellbeing only are re-presented, but broken down by length of stay. The effect of attrition is evident as those with shorter lengths of stay show the expected improvement, while those who are still in hospital after three weeks have yet to improve.

A potential solution for generating more helpful feedback graphs that adequately capture inpatient progress may be to depict progress relative to client cohorts with various lengths of stay (or number of therapy sessions). This proposition is based on well-established positive relationships between levels of symptom severity, incidence of co-morbid disorders, and length of stay within inpatient facilities (Lyketsos, Dunn, Kaminsky, & Breakey, 2002; Lyons et al., 1997). Displaying progress relative to treatment length has not yet been used by any research group, thus the present study provided a preliminary investigation of its value. If the client cohort is divided into different groups based on length of stay and the expected therapy response curve for each group is calculated, then the client’s progress can be compared to the progress of clients with varying symptom severity and correspondingly, varying lengths of stay. This feedback design may better capture patterns of progress for clients with more severe or “unpredictable” patterns of symptoms. Additionally, benchmarking progress against varying treatment lengths may assist therapists in determining prognoses and in treatment planning. For example, therapists may use the feedback to discuss client expectations for therapy duration and recovery, or to consider transition between inpatient and outpatient care.

**Present Study**

Existing literature suggests that individual differences between feedback recipients, and variations in presentation and discussion of feedback, may account
for the observed variability in feedback responses. The current study aimed to examine how different ways of visually presenting feedback influence therapists’ perceptions of the feedback and the subsequent types of clinical conversations that might ensue. It was anticipated that this investigation may provide an account for the differential responses to on-track and not-on-track feedback. To test for the effect of different presentation styles, we developed three feedback graphs that controlled for the pattern of on-track or not-on-track progress depicted, but varied in their visual components (Figure 4.3).
Figure 4.3. Examples of the three presentation styles for feedback featured within the feedback questionnaire, depicting on-track (a, b) and not-on-track (c) progress. The scores within each progress status condition were identical, with variations only in presentation style.

Figure 4.3a is a replica of the feedback graphs utilised by Newnham et al. (2010b), which plots the patient’s progress alongside expected therapy response trajectories (henceforth referred to as the “Expected Therapy Response” graph). The four categories of clinical significance, similar to the classifications used by Lambert and colleagues, are captured in Figure 4.3b by four different coloured bands set against the patient’s line of progress (“Clinical Significance” graph). The third possible style (“Length of Stay” graph; Figure 4.3c) considers groups of patients by length of stay. It is a novel design that attempts to remedy problems associated with adequately depicting the progress of patients with more severe psychopathology. The development of each graph is described in greater detail in the Method section.

While all three graphs contain both elements of norm-referenced and self-referenced information, the visual design of each graph intends to draw attention to each of these elements to varying degrees. Specifically, the Clinical Significance
graph (Figure 4.3b) may be considered more idiographic or self-referenced (i.e., the description and presentation of the graph focuses on quantifying the amount of personal change by comparing one’s current scores to previous scores, with less emphasis on the normative nature of the colour bands). Conversely, the description and presentation of the Expected Therapy Response (Figure 4.3a) and Length of Stay (Figure 4.3c) graphs are more inclined towards norm-referenced feedback (i.e., comparing one’s progress to a normative cohort of patients with similar intake severity or length of stay). When presenting feedback, Kluger and DeNisi (1996) and Shute (2008) cautioned that normative comparisons can be unhelpful if they draw attention toward the self and away from the task at hand; or if the feedback recipient perceives the gap between current progress and the normative standard as too wide to bridge. Of interest to the present study was thus whether the use of different referents for comparison may elicit different clinical conversations, or have different effects on the recipient.

**Participant sample.** For the study, trainee therapists were asked to rate their perceptions towards aspects of the three different styles of feedback graphs, either depicting an on-track or not-on-track patient. Trainee therapists were ideal candidates for the present investigation because they were less likely to have been exposed to feedback systems in the past. We also anticipated that trainee therapists who were developing their skills would be receptive to feedback on their clients’ progress, given that feedback is considered a crucial ingredient for developing therapist competencies (Worthen & Lambert, 2007). Therapist perceptions formed the focus of the study because therapists in prior clinical feedback trials were largely autonomous in determining how to use feedback (Newnham et al., 2010b; Shimokawa et al., 2010). Correspondingly, decisions on how to use feedback may be
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guided by therapists’ perceptions of the positive and negative effects of discussing the feedback with their individual clients (Norman et al., 2013). There is also some suggestion that therapists’ ability to use and integrate feedback effectively is influenced by individual characteristics such as self-efficacy (i.e., personal beliefs about their ability to deliver effective therapy) and feedback propensity (i.e., tendencies to seek feedback from oneself or others; De Jong, Van Sluis, Nugter, Heiser, & Spinhoven, 2012; Riemer et al., 2005). For trainee therapists, levels of self-efficacy specific to therapy skills may be lower than experienced therapists, and may provide greater variability. Therefore, to examine whether individual-difference variables influenced their perceptions of the feedback’s impact and usefulness, participants in the current study also completed questionnaires assessing their feedback propensities, self-esteem, and self-efficacy.

Hypotheses

Drawing from previous findings (Kluger & DeNisi, 1996), we noted that perceived effects on self-esteem may vary based on the degree to which different feedback styles direct attention toward the self. Furthermore, negative feedback generally diminishes feelings of self-worth compared to positive feedback (Brown, 2010). However, previous studies have not examined how presentation style of clinical feedback influences perceived impact on self-esteem. In the present study, it was hypothesised that the way feedback is presented (specifically the presentation style and conveyed progress status) would influence therapists’ perceptions of the impact of feedback on client self-esteem (Hypothesis 1).

If therapists perceived that presenting feedback would influence client’s self-esteem, this may be due to how they envisioned using the feedback in discussions with the client. Therapists may find different feedback graphs useful depending on
the importance that they ascribe to factors emphasised by the different styles. Indeed, researchers suggest that not-on-track feedback is more salient to therapists, and more effective, than on-track feedback (Brodey et al., 2005; Hatfield & Ogles, 2006; Sapyta et al., 2005; Shimokawa et al., 2010). As such, therapists may find not-on-track feedback more useful than on-track feedback, particularly for discussing aspects of therapy with the client. Therefore, the second hypothesis was that differences in therapists’ perceptions about the usefulness of different feedback graphs in supporting clinical discussions would account for differences in perceived impact on client self-esteem (Hypothesis 2). We specifically predicted that usefulness ratings would differ between the Expected Therapy Response and Clinical Significance graphs (norm- and self-referenced respectively), and between the Expected Therapy Response and Length of Stay graphs (both norm-referenced but to different criteria).

Finally, it was hypothesised that therapists would differ in their preferences for style of feedback, and that variability in therapists’ perceptions of the feedback graphs would be associated with individual-difference variables (Hypothesis 3).

**Method**

**Participants**

Forty-four graduate clinical psychology trainees from three Australian universities participated in the study. Forty-two trainees (95.5%) were female and participants’ ages ranged from 22 to 35 years ($M = 26.2$, $SD = 3.1$). Participants reported an average of 2.2 years of formal clinical training ($SD = 1.7$; range $= 0.5 – 6.5$ years) and 2.0 years of clinical practice (i.e., direct client contact via clinical practicum or employed work; $SD = 2.6$; range $= 0 – 15$ years). The majority (91%) of trainees reported that cognitive-behavioural therapy was their primary therapeutic
orientation. Approval for the study was granted by The University of Western Australia Ethics Committee.

**Materials and Design**

The study employed a $2 \times 3$ mixed design, with progress status (on-track, not-on-track) as a between-subjects factor, and feedback graph (three different styles) as a within-subjects factor. Participants were randomly assigned to the on-track ($n = 41$) or not-on-track ($n = 43$) conditions, whereby graphs within the feedback questionnaire depicted on-track and not-on-track progress respectively (Appendices A and B).

**Feedback questionnaire.** The instructions page of the feedback questionnaire provided a description of a hypothetical progress monitoring program that involved inpatients completing a measure of depressive symptoms on alternate days of their hospital stay. Participants were informed that they would be presented with three different graphs depicting the progress of a hypothetical inpatient, Jane, whom they were treating for depression. For each graph, participants were asked to read the accompanying description and then rate a list of statements about the graph. The characteristics of each graph are described below.

**Expected Therapy Response graph (Figure 4.3a).** In this graph, patient’s depression scores over nine days of inpatient therapy were plotted against upper and lower boundaries of an expected therapy response curve, replicating the design used by Newnham et al., 2010b as described earlier. In the present layout, the upper and lower boundaries were created around the patient’s scores to manipulate progress status, such that one version showed on-track progress (i.e., within the expected therapy response curves) while the other version showed that the patient was not-on-track (i.e., above the expected therapy response curves).
**Clinical Significance graph (Figure 4.3b).** This graph was influenced by Lambert, Whipple, and colleagues’ (2001) use of colour-coded messages to indicate the patient’s recovery status (recovered, improved, no change, or deteriorated). These four outcome classifications were represented on the graph as four different coloured horizontal bands (blue, green, amber, and red respectively), which Jane’s scores were mapped against. Participants were informed that the demarcations for the coloured bands were determined by scores from a previous cohort of patients (see Jacobson & Truax, 1991 and Lambert, Whipple, et al., 2001 for how to calculate cut-offs for the outcome classifications).

**Length of Stay graph (Figure 4.3c).** This graph comprised three “triangular” blue zones of increasing intensity (pale to medium to dark when moving from left to right) against which Jane’s scores were mapped. Participants were told that the demarcations for the zones were derived from a previous cohort of patients, who were divided into three groups based on length of stay, then had their average progress mapped. Based on Figure 4.2b described earlier, patients who made quick progress and had shorter lengths of stay tended to show a steep decline in the severity of depressive symptoms. Most of their scores fell in the pale blue zone of the feedback graph (steepest gradient of change). As the severity of depressive symptoms increased, patients took a longer time to improve, and stayed in therapy for longer periods of time. The gradient of change was more gradual, and their scores fell mostly in the dark blue zone of the graph. Thus, the darker the zone in which the patient’s scores mostly fall, the more severe the symptoms, and the longer the time that the patient may take to improve.

**Rating statements.** For each graph, participants were asked to rate how useful the graph would be in helping the therapist to have a discussion with Jane
about particular aspects of therapy (“usefulness ratings”). A pool of conversation items was generated by the author based on previous research about how therapists use the feedback in therapy with clients (e.g., Hatfield & Ogles, 2004; Lutz et al., 2011; Rise, Eriksen, Grimstad, & Steinsbekk, 2012; Sundet, 2012; Unsworth et al., 2012; Yates, 2012). This list was then refined by three experienced researcher-clinicians down to the final list of 13 items (Table 4.1). Each item was rated on a seven-point scale, ranging from “0” being “not useful at all/not applicable” to “6” being “very useful”, with “3” (“somewhat useful”) as the midpoint.

After all three graphs were rated, participants were presented with a final page of “summary questions” (Appendix C). They were asked to 1) rank the graphs in order of their preference when giving feedback to Jane (“preference ranks”); and 2) identify the graph that they thought would best help Jane to understand her progress in therapy (“graph choice”). Finally participants were shown a visual analogue scale ranging from “diminishes self-esteem” to “enhances self-esteem”, with “no effect on self-esteem” as a midpoint. They were asked to place three crosses along the scale to indicate the perceived impact that presenting each of the three graphs would have on Jane’s self-esteem (“self-esteem ratings”). The visual analogue scale had a minimum score of -6.9 (measured in cm, with negative scores indicating perceived diminished self-esteem), and a maximum score of 6.9 (indicating perceived enhanced self-esteem). A score of zero indicated no perceived impact on self-esteem.

**Variations of the feedback questionnaire.** The order of the three graphs was randomised across participants, producing six possible orders of presentation. Additionally, half of the participants received graphs depicting Jane making expected progress and doing well in therapy (“on-track”; Appendix A), whereas the
other half of participants received graphs indicating that Jane was not making expected progress (“not-on-track”; Appendix B). Given the two types of patient progress and the six orders, there were 12 possible versions of the feedback questionnaire.

**Individual-Difference Questionnaires.**

**Internal & External Feedback Propensity Scale (IEFPS; Herold, Parsons, & Rensvold, 1996).** This comprises two six-item scales that assess an individual’s predispositions towards seeking and using feedback from within oneself (internal) or from others (external) respectively. Items are rated on a 5-point Likert scale, with higher scores reflecting greater inclination towards that source of feedback. In independent samples of workplace supervisors, trainee helicopter pilots, and graduate management students, Herold and colleagues (1996) reported internal consistency (α) of approximately .70 for the internal propensity scale, and between .59 and .83 for the external scale. Confirmatory factor analyses demonstrated two distinct factors that shared a weak negative correlation (-.17 < r < -.27).

**Rosenberg Self-Esteem Scale.** The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1979) is a 10-item self-report questionnaire that measures one’s global sense of self-worth. Each item is rated on a four-point Likert scale, with higher scores indicating higher self-esteem. The RSES exhibited high internal consistency (α = 0.91) when administered to a large community sample (Sinclair et al., 2010).

**New General Self-Efficacy Scale.** The New General Self-Efficacy Scale (NGSE; Chen, Gully, & Eden, 2001) is an 8-item self-report measure of an individual’s beliefs in one’s own ability to perform across a wide variety of achievement situations. Rated on a five-point Likert scale, higher scores indicate greater self-efficacy. The NGSE has demonstrated high internal consistency (α = .87,
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.88, and .85) and reasonable test-retest reliability within a 3- to 10-week period when tested over three occasions with an undergraduate student sample (.62 < r < .67; Chen et al., 2001).

Procedure

Participants were invited to participate via emails sent by the course coordinators of their respective universities. Trainees who were interested in participating collected a questionnaire pack from their training clinic, and returned the pack to the clinic reception upon completion (either in person or by mail). Within the pack, participants were given an information sheet outlining the study. Completion of the questionnaire pack was taken as indication of consent to participate. Participants who chose to proceed were first asked to provide demographic information and details about their clinical training, and then fill in the IEFPS, RSES, NGSE, and feedback questionnaire respectively.

Results

Three participants had missing data for perceived self-esteem ratings, as the marks drawn on the visual analogue scale were missing or unclear. However, their data were retained as all other variables were complete. No outliers were identified, and the data were normally distributed.

Perceived Self-Esteem Ratings

To examine the effects of feedback presentation style and progress status on perceived impact on Jane’s (i.e., the patient’s) self-esteem, a 2 × 3 mixed ANOVA with progress status as a between-subjects factor and feedback graph as a within-subjects factor was conducted on the perceived self-esteem ratings. While the main effect of feedback graph was not significant, \( F(2, 78) = 1.29, p = .28, \eta^2_p = .03 \), there was a significant main effect of progress status on perceived self-esteem.
ratings, \((F(1, 39) = 117.68, p < .001, \eta_p^2 = .75)\). On average, participants rated the feedback graphs as “enhancing self-esteem” in the on-track condition, and “diminishing self-esteem” in the not-on-track condition (see Figure 4.4).

![Figure 4.4](image)

**Figure 4.4.** Mean ratings for perceived impact on self-esteem (+/- one standard error) for the three feedback graphs based on Jane’s progress status.

However, there was also a significant feedback graph × progress status interaction, \((F(2, 78) = 10.61, p < .001, \eta_p^2 = .21)\), suggesting that the effect of progress status varied across the three feedback graphs. Thus, follow-up 2 × 2 ANOVAs were conducted to examine this interaction. Perceived self-esteem ratings were similar between the Expected Therapy Response and Clinical Significance graphs regardless of progress status, as indicated by a non-significant interaction \((F(1, 40) = 0.12, p = .73, \eta_p^2 = .003)\). In contrast, the interactions between feedback graph and progress status were significant when comparing the Length of Stay graph to the Clinical Significance graph \((F(1, 39) = 16.78, p < .001, \eta_p^2 = .30)\), and to the Expected Therapy Response graph \((F(1, 39) = 13.24, p < .001, \eta_p^2 = .25)\). Again, as
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shown in Figure 4.4, the discrepancy in perceived impact on self-esteem between the on-track and not-on-track conditions was larger for the Clinical Significance and Expected Therapy Response graphs, but attenuated for the Length of Stay graph.

Usefulness Ratings

Data checks. Table 4.1 shows the usefulness ratings for individual conversation items for each feedback graph. Ratings of usefulness appeared similar across all items except for item 3 (“Talk with Jane about her progress relative to what was expected based on other patients with similar scores?”), and item 4 (“Talk with Jane about her progress in comparison to the cut-off score for the healthy range [i.e. in comparison to a non-patient]?”) Pairwise comparisons showed that participants found the Clinical Significance graph less useful for discussing Jane’s progress relative to what was expected based on other patients (item 3), but more useful for discussing Jane’s progress in comparison to the healthy range cut-off (item 4), relative to the Expected Therapy Response and Length of Stay graphs ($p < .05$).

Table 4.1.
Mean usefulness ratings for individual topics of discussion for each feedback graph ($ETR = \text{Expected Therapy Response}; CS = \text{Clinical Significance}; LOS = \text{Length of Stay}$).

<table>
<thead>
<tr>
<th>No.</th>
<th>Conversation item</th>
<th>ETR</th>
<th>CS</th>
<th>LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Discuss with Jane about any progress that she has made?</td>
<td>4.4</td>
<td>4.6</td>
<td>4.1</td>
</tr>
<tr>
<td>2</td>
<td>Discuss with Jane about any setbacks that she may have encountered?</td>
<td>4.7</td>
<td>4.8</td>
<td>4.5</td>
</tr>
<tr>
<td>3</td>
<td>Talk with Jane about her progress relative to what was expected based on other patients with similar scores? *</td>
<td>4.4</td>
<td>2.8</td>
<td>4.0</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th></th>
<th>Task Description</th>
<th>Rating 1</th>
<th>Rating 2</th>
<th>Rating 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Talk with Jane about her progress in comparison to the cut-off score for the healthy range (i.e., in comparison to a non-patient)? *</td>
<td>2.1</td>
<td>4.2</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>Discuss with Jane about how long she has been in therapy for?</td>
<td>3.6</td>
<td>3.6</td>
<td>4.1</td>
</tr>
<tr>
<td>6</td>
<td>Discuss the effectiveness of the therapy that Jane has received to date?</td>
<td>3.9</td>
<td>4.3</td>
<td>3.9</td>
</tr>
<tr>
<td>7</td>
<td>Encourage Jane to continue with what she is doing?</td>
<td>3.2</td>
<td>3.2</td>
<td>3.3</td>
</tr>
<tr>
<td>8</td>
<td>Discuss with Jane whether she would benefit from more therapy sessions?</td>
<td>3.7</td>
<td>3.8</td>
<td>4.0</td>
</tr>
<tr>
<td>9</td>
<td>Explore with Jane other problem areas that may not have been addressed?</td>
<td>3.5</td>
<td>3.6</td>
<td>3.4</td>
</tr>
<tr>
<td>10</td>
<td>Discuss with Jane about whether to consider a potential change in therapeutic direction?</td>
<td>3.5</td>
<td>3.6</td>
<td>3.6</td>
</tr>
<tr>
<td>11</td>
<td>Initiate a discussion with Jane about when to terminate therapy?</td>
<td>2.9</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>12</td>
<td>Brainstorm with Jane different strategies that can be implemented to improve or maintain her progress?</td>
<td>3.8</td>
<td>3.9</td>
<td>3.8</td>
</tr>
<tr>
<td>13</td>
<td>Re-evaluate and re-set the goals that had been identified at the beginning of therapy?</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
</tr>
</tbody>
</table>

Note. The question preceding the items was “Referring to Graph _ on the previous page, how useful would the graph be in helping you to:”

* $p < .05$.

All 13 items were summed to derive an aggregate usefulness score for each feedback graph. Internal consistency ($\alpha$) for the three graphs ranged from .63 to .74, providing some support for using this aggregated score in further analyses. The effect of order of graph presentation on aggregated usefulness ratings was not significant, $F(5, 38) = 1.16, p = .35, \eta_p^2 = .13$, therefore order of presentation did not have to be accounted for in further analyses.
**Perceived usefulness.** To examine the effects of feedback presentation style and progress status on usefulness ratings, planned repeated measures contrasts were conducted. As illustrated in Figure 4.5, there were no significant differences in usefulness ratings between the Expected Therapy Response and Clinical Significance graphs, $F(1, 42) = 0.92, p = .34, \eta^2_p = .02$, or between the Expected Therapy Response and Length of Stay graphs, $F(1, 42) = 0.03, p = .87, \eta^2_p = .001$. Additionally, there was no significant difference in usefulness ratings between the on-track and not-on-track conditions, $F(1, 42) = 0.66, p = .42, \eta^2_p = .02$, and no significant interaction between progress status and feedback graph, $F(2, 84) = 0.26, p = .78, \eta^2_p = .01$.

![Figure 4.5](image_url)

*Figure 4.5.* Mean usefulness ratings (+/- one standard error) for the three feedback graphs based on the patient’s progress status.

**Individual Differences in Perceptions towards Feedback**

Participants tended to rank the Clinical Significance graph as most preferred, $M = 1.71, \chi^2(2, N = 44) = 6.05, p = .05$, and the Length of Stay graph as least...
preferred, $M = 2.36$, $\chi^2(2, N = 44) = 10.96$, $p < .05$, when giving feedback to Jane.

For the Expected Therapy Response graph, preference ranks were equally distributed across the response options, $M = 1.93$, $\chi^2(2, N = 44) = 4.41$, $p = .11$. Likewise, significantly more participants chose the Clinical Significance graph ($n = 23$) than the Length of Stay graph ($n = 7$) as the graph that would best help Jane to understand her progress in therapy, $\chi^2(2, N = 44) = 8.53$, $p < .05$. The number of trainees who selected the Expected Therapy Response graph ($n = 15$) did not significantly differ from the former two graphs.

Descriptive statistics for the individual-difference variables (feedback propensity, self-esteem, and self-efficacy) are presented in Table 4.2. Pearson correlations were calculated to examine relationships between these individual-difference variables and participants’ perceptions of the feedback graphs. First, usefulness ratings were compared with participants’ propensity to seek and use feedback from external sources or from oneself. As usefulness ratings did not differ across the three feedback graphs, the ratings for the three graphs were summed to obtain a composite usefulness score. Neither internal feedback propensity, $r = .02$, $n = 44$, $p = .99$, nor external feedback propensity ($r = .22$, $n = 44$, $p = .15$), were associated with perceptions of usefulness. Second, given that high self-esteem enhances positive feedback and buffers against negative feedback (Brown, 2010; Shrauger & Rosenberg, 1970), participants’ perceived self-esteem ratings were compared against their self-esteem and self-efficacy scores. In this analysis, the significance value was Bonferroni-adjusted for multiple correlations ($\alpha = .05/12 = .004$). Perceived self-esteem ratings across the feedback graphs and progress status conditions did not correlate significantly with participants’ self-esteem or self-efficacy scores ($-.44 < r < .23$, $ps > .04$).
Table 4.2. Descriptive statistics for trainee therapists’ feedback propensity, self-esteem, and general self-efficacy scores.

<table>
<thead>
<tr>
<th>Individual-difference variable</th>
<th>M (SD)</th>
<th>Range (Max. possible score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal feedback propensity</td>
<td>17.45 (3.29)</td>
<td>11 – 23 (30)</td>
</tr>
<tr>
<td>External feedback propensity</td>
<td>24.16 (2.52)</td>
<td>18 – 29 (30)</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>31.61 (4.40)</td>
<td>19 – 40 (40)</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>30.48 (2.64)</td>
<td>25 – 38 (40)</td>
</tr>
</tbody>
</table>

Discussion

The aim of this study was to examine how different ways of visually presenting feedback influenced therapists’ perceptions of the feedback and the subsequent types of clinical conversations that might ensue. Hypothesis 1 that the way feedback is presented would influence therapists’ ratings of the perceived impact of feedback on client self-esteem was supported. Therapists perceived that not-on-track feedback would diminish client’s self-esteem, whereas on-track feedback would enhance client’s self-esteem. This result was consistent with findings that negative feedback generally reduces self-worth (Brown, 2010) while positive feedback can enhance self-worth (Besser et al., 2008); and provided further support for a role of self-esteem in accounting for variability in client responses to feedback. Additionally, overall differences in perceived self-esteem ratings were not found between the three different presentation styles. However, when progress status was taken into account, significant differences were observed. For the Clinical Significance and Expected Therapy Response graphs, on-track feedback was rated as enhancing self-esteem while not-on-track was rated as diminishing self-esteem.
Conversely, this difference in perceived impact between on-track and not-on-track feedback was attenuated for the Length of Stay graph. This novel finding of an interaction between progress status and presentation style suggested that it may be important for therapists to consider how the presentation of feedback (particularly not-on-track feedback) may impact on clients’ self-esteem. In a later section, we explore the implications of the aforementioned findings for clinical feedback practices, and highlight issues for consideration when therapists share feedback with their clients.

To identify possible reasons for the interaction between presentation style and progress status, we also compared usefulness ratings for the feedback graphs. It was hypothesised that differences in therapists’ perceptions about the usefulness of different feedback graphs in supporting clinical discussions would account for differences in perceived impact on client self-esteem (Hypothesis 2), but this hypothesis was not supported. When ratings were aggregated across the conversation items, perceptions of usefulness did not differ between the three feedback graphs. Participants also perceived the conversation items to be equally useful for discussing with clients regardless of whether the client was on-track or not-on-track. This suggested that therapists’ self-esteem ratings were unlikely to be attributable to the types of discussions that they envisioned would ensue from the feedback.

However, it may be useful to note that at the individual item level, participants rated the Clinical Significance graph as significantly more useful for comparing the client’s progress relative to the healthy range cut-off score, while the Expected Therapy Response and Length of Stay graphs were perceived as significantly more useful for comparing the client’s progress relative to other clients. This pattern of results was not surprising given the setup of each graph (i.e., the
Clinical Significance graph made explicit reference to a healthy range cut-off score. It also highlighted potential value in conceptualising the Clinical Significance graph as self-referenced, and the latter two graphs as norm-referenced. Given that the graphs differed in the referent used to benchmark client’s progress, the observed differences in perceived self-esteem ratings between feedback graphs may be partially explained by differences in the degree to which each graph draws attention to oneself versus the therapeutic process (Kluger & DeNisi, 1996). Future research investigating this possibility would require more specific categorisations of the different graph features to enable more systematic comparison.

In considering that referent standards may shape the visual presentation of the graph, another potential avenue for further investigation is in how the choice of referent standard impacts on the definition for on-track and not-on-track progress. In the present study, the definitions for not-on-track and on-track would differ (slightly) between the graphs, as the graphs are developed using different referent standards. Although no formal comparisons have been made, the same is likely to apply to how clients are classified across the different feedback trials (e.g., De Jong et al., 2012; Lambert et al., 2001; Newnham et al., 2010). The trials use different client samples and different definitions of progress. However, a client who is classified as not-on-track in one trial is likely to be classified as not-on-track in another trial, and vice-versa (i.e., discrepancies in classification may occur but would be rare). In real-world clinical practice, the possibility of yielding different progress classifications for the one client is problematic. Empirical investigation would allow verification of the reliability of different progress status classifications, and clarify how this might impact on the interpretation and use of feedback graphs with clients.
Individual Differences

The present study also aimed to investigate how individual therapist characteristics related to perceptions about feedback. Results did not support Hypothesis 3 that variability in therapists’ perceptions of the feedback graphs would be associated with individual-difference variables. We found that while participants differed in their preferences for style of feedback, variations in how they perceived the different styles were not reflected by differences in self-esteem, self-efficacy, or feedback propensity. The lack of significant relationships between internal and external feedback propensity and perceived usefulness of feedback was consistent with recent findings by De Jong and colleagues (2012), who did not find significant correlations between feedback propensity and commitment to use feedback, or actual feedback use among therapists working in adult outpatient mental health institutions. Furthermore, contrary to previous findings that high self-esteem enhances positive feedback and buffers negative feedback (Brown, 2010; Shrauger & Rosenberg, 1970), therapists were neither more likely to perceive positive feedback as beneficial to clients if they had higher self-esteem/efficacy; nor more likely to perceive negative feedback as harmful to clients if they had lower self-esteem/efficacy.

Collectively, the findings suggest that therapists’ individual dispositions are unlikely to influence their perceptions of using the feedback or transfer its impact onto clients. However, it is important to keep in mind that therapists in the present study provided ratings for a hypothetical client, and they were not being evaluated on the client’s progress or their skills levels. As such, therapists’ self-esteem and self-efficacy may have had little impact on their interpretations of the feedback graphs. If they were instead viewing feedback about their own clients (i.e., a reflection of their
Perceptions of Feedback Presentation

own work), stronger associations between therapist individual-difference variables and perceptions of the feedback graphs may have emerged.

Understanding the links between therapist variables and feedback use is crucial because De Jong and colleagues (2012) observed that therapists’ self-efficacy and internal feedback propensity influenced clients’ rates of symptom improvement when therapists actually used the feedback. Therefore, the current findings may also suggest a breakdown between therapists’ perceptions or insight, and what actually happens in therapy. To this extent, therapists’ levels of experience with using feedback, and their sensitivity to the subtleties of clinical feedback, may impact on the effectiveness of feedback interventions. This gives rise to the potential for introducing training initiatives that build therapists’ skills and self-efficacy in utilising feedback effectively, and for parallel supervision initiatives that support therapists in the implementation of feedback (Riemer et al., 2005; Worthen & Lambert, 2007).

Implications for Clinical Feedback Interventions & Future Research

Based on the survey by Lutz and colleagues (2011) that investigated how therapists used feedback, the most common response was discussing the feedback with clients, particularly when feedback indicated that the client was not-on-track. The current study contributed a novel finding to the clinical feedback literature, in which the way that feedback is presented to convey positive or negative progress status may impact on client’s self-esteem, as assessed by therapists’ perceptions. The emphasis on therapists’ perceptions is an important one as it distinguishes what therapists perceive might happen from how clients actually react. The current study does not permit conclusions about how client’s self-esteem will be affected by the feedback, as feedback was not given to actual clients. Indeed, the actual impact on
clients’ self-esteem may be different to therapists’ perceptions. However, regardless of whether therapists’ perceptions are different from or similar to reality, both outcomes provoke noteworthy considerations. On one hand, if therapists’ perceptions of impact differ from actual impact, then education and training may be beneficial in correcting any misperceptions that hinder therapists from using feedback constructively. On the other hand, if therapists are accurate in their judgment that providing feedback can affect the client’s self-esteem, then this raises practical concerns about how the therapist should discuss the feedback with the client, especially if the feedback conveys that the client is not making expected progress.

Unfortunately, more detailed guidelines for how therapists should tailor clinical feedback to individual client characteristics are not available. Preliminary suggestions from experimental research (see Kluger & DeNisi, 1996) indicate that feedback is more effective if it draws attention to the task at hand (e.g., therapy participation) rather than to the self (e.g., not-on-track feedback may strengthen thoughts of “I am not good enough”). Pairing feedback with goal-setting may also facilitate better use of, and outcomes from, the feedback (Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Shute, 2008). Future research on the clinical value of these suggestions would contribute towards shaping more effective ways of presenting and discussing feedback.

Additionally, findings from this study suggest that it may be helpful to distinguish between content and process of feedback delivery when investigating the effective mechanisms of clinical feedback. Given that the conversation topics were perceived as equally useful regardless of progress status, it may be that the crucial factor is not what the conversation topics are (content) but how the topic is discussed.
Indeed, ineffective feedback delivery can reduce motivation, lower (or inflate) expectations of change, or lead to client rejection of the feedback. Process questionnaires assessing therapeutic alliance and motivation are useful (for examples, see Miller et al., 2006 and Rise et al., 2012). However, gaining a thorough understanding is likely to necessitate closer inspection of both the verbal and non-verbal responses of the therapist and client within the feedback discussion.

**Limitations**

The current study implemented a questionnaire to evaluate the perceptions of trainee therapists and provides a foundation for future investigations into various practice contexts and different outcome indicators. The hypothetical scenario of an inpatient hospital setting that provided daily therapy was selected because less is known about feedback efficacy within inpatient settings (Newnham et al., 2010b). The scenario also permitted the use of length of stay in one of the feedback graphs. While feedback studies have been shown to be complementary to different therapies and different presenting problems (Lambert et al., 2005), the contextual framing may affect ratings of perceived usefulness. It is not known whether feedback delivered within an inpatient context can generalise to other treatment settings, and thus future studies may consider framing the scenario in a different treatment setting or for a different client group to investigate the stability of therapists’ perceptions.

A second limitation was that most of the trainee therapists within the present study indicated that their primary theoretical orientation was cognitive-behavioural, and their attitudes towards feedback appeared to be largely favourable, restricting our ability to investigate therapist perceptions across a wider range of theoretical orientations. There does not appear to be consistent evidence that level of clinical training, years of experience, or theoretical orientation, significantly impact on
tendency to use monitoring measures and levels of feedback use (De Jong et al., 2012; Duncan & Murray, 2012; but see Hatfield & Ogles, 2004 for opposing evidence). However, different training programs may influence perceptions of the utility of feedback, and some programs may even explicitly target the development of skills in implementing monitoring and feedback interventions. For example, Hatfield and Ogles (2004; 2007) found that self-reported use of outcome measures was higher amongst cognitive and behavioural therapists than insight-oriented or “eclectic” therapists, but noted that the latter practices were not necessarily incompatible with the concept of outcomes monitoring. An important research question that follows is whether formal training is necessary for the development of effective monitoring and feedback practices.

Finally, we measured perceived usefulness of the conversation items in discussions with clients, but perceptions may not translate to actual discussions of the feedback in a naturalistic setting. Reported intentions to carry out a behaviour have been found to significantly predict actual behaviour (Eccles et al., 2006), including use of feedback, but this may not necessarily lead to better outcomes (De Jong et al., 2012). Future studies may consider applying different styles of feedback in a naturalistic setting, and then coding the different discussion topics that arise. This will enable formal validation of whether different ways of presenting feedback give rise to different clinical conversations, and whether these clinical conversations directly contribute to more effective therapy.

**Conclusions**

The success and sustainability of implementing evidence-based clinical treatments and interventions rests on therapists’ perceptions and attitudes towards these tools, and how they subsequently use the feedback. With emerging evidence
that therapists engage with monitoring and feedback tools and discuss formal progress feedback with their clients, there is greater impetus to understand the impact that this exchange has on the client, to ensure that feedback does not impose any harm. The future research initiatives described above will help to build our understanding of how feedback content and process contribute to its effectiveness in treatment. In the longer-term, this knowledge will enable us to develop clinical guidelines for effective and individualised feedback delivery.
GENERAL DISCUSSION
- General Discussion –

Proposing a Theoretical Framework for Studying the Effects of Clinical Feedback

Feedback is valuable for enhancing therapy outcomes. To make clinical feedback more targeted, efficient, and attractive to its users, efforts to enhance the knowledge base around how feedback works in psychotherapy are vital. Having a sound theoretical grounding for clinical feedback interventions will put researchers and therapists in a better position to identify practical tips for delivering feedback effectively.

The present thesis described a series of investigations that aim to support the development of a preliminary theoretical model of clinical feedback mechanisms. To this end, the studies illustrated in the previous chapters used a diverse range of research methodologies (laboratory experiments, surveys, and a controlled clinical trial), and a variety of measures and samples, to address questions about feedback. This multi-perspective approach was used to provide richer answers than would be permitted from a singular method of investigation. However, the diversity of elements also presents a potential challenge for integrating the findings into a whole. Therefore, in the next section, the specific findings from studies in the thesis will be synthesised to construct a theoretical framework for clinical feedback.

Building a Theoretical Framework for Clinical Feedback Interventions

Figure 5.1 depicts a preliminary theoretical model for how clinical feedback may contribute to enhancing therapists’ use of feedback, and to improving client outcomes. When feedback is provided, characteristics of the feedback (i.e., its presentation format and the information conveyed) influence how the feedback is interpreted and elaborated on by the therapist and/or client. This elaboration is
crucial – simply presenting feedback without more in-depth processing of the information means that the feedback may not be as salient for the recipient, and hence will not effect changes in the recipient’s attitudes or behaviours. In addition, exploring the recipient’s interpretation of the feedback, encouraging attributions, and even setting goals can increase engagement with the feedback information. This elaboration process is likely to have a stronger impact on the recipient’s reactions to the feedback (Sapyta, Riemer, & Bickman, 2005; Shute, 2008). Moreover, the interpretation and elaboration of feedback do not occur in a vacuum, but instead through the unique lens of the recipient. Thus, the processing of feedback interacts with individual-difference characteristics of the feedback recipient, to induce internal cognitive-affective processes that in turn regulate feedback-related behaviours and outcomes.

Figure 5.1. A preliminary theoretical framework for studying and understanding how clinical feedback works.
The basic template shown in Figure 5.1 acknowledges what previous research has consistently established – that the effectiveness of feedback is a function of interactions between individual-difference characteristics of the feedback recipient, characteristics of the feedback message, the task at hand, and broader contextual or situational factors (e.g., Kluger & DeNisi, 1996; Shute, 2008; Visscher & Coe, 2003). Thus far, we have not specified the individual-difference and feedback characteristics, and cognitive-affective reactions, that may be included in the framework. At the broader level, the framework provides researchers with flexibility to explore the implementation of feedback across different treatment settings and client populations. It also allows for experimentation with different modes of feedback delivery. That is, researchers can select and study recipient or feedback variables that would be applicable to their particular treatment context or client population. To demonstrate the utility of such a framework in guiding feedback implementation, the present thesis investigated variables that were previously shown to influence feedback response, and that bear relevance to clinical practice. The variables discussed in the following sections have received substantial attention in prior studies, and have emerged as significant contributing factors within the present thesis. In an extension of the evidence base, we examined other variables that held potential importance but they did not yield significant effects in the present thesis, and hence were not included in the final model. However, these variables may be useful for further consideration in different settings or feedback contexts.

**Feedback Characteristics and Feedback Elaboration**

The provision of feedback can enhance individuals’ decision-making accuracy (Chapter 1), but its effect on therapeutic outcomes varies between clients (Chapter 3), and this is possibly due to how the feedback is presented and elaborated.
One of the most important features that influences feedback response is the **progress status** conveyed by the feedback (i.e., positive on-track progress, or negative not-on-track progress), and findings from the present thesis provided additional support for this. Our studies found that progress status affected participants’ cognitive-affective reactions and perceptions of the task (Chapter 2), and had differential effects on clients’ treatment outcomes (Chapter 3). Trainee therapists also perceived that not-on-track feedback likely diminishes client’s self-esteem while on-track feedback can enhance client’s self-esteem (Chapter 4). Further investigation suggested that the impact of progress status may be varied by how the feedback is visually presented, whereby some styles of graphical feedback presentation may have less of an impact on self-esteem than other styles (Chapter 4).

Another feedback characteristic that influences how feedback is elaborated is the use of **referent standards**. As observed in Chapter 2, comparing an individual’s progress to a referent standard (either to oneself or to a norm) enhanced the individual’s task performance relative to not providing feedback. The referent standard used can also lend itself to different clinical conversations (Chapter 4). Trainee therapists perceived that self-referenced graphs were more useful for comparing a client’s progress to previous progress, whilst norm-referenced graphs were more useful for comparing the client’s progress to the progress of other clients. Furthermore, both progress status and referent standard interacted to influence trainee therapists’ perceptions of how useful the graphs were for elaborating specific information about the client’s progress. These findings collectively suggest that the design and presentation features of feedback can influence feedback elaboration and subsequent outcomes, and hence require careful consideration during implementation.
Recipient Characteristics

Two recipient characteristics, self-esteem and control, were included in our final theoretical framework. We found that self-esteem moderated the effect of providing not-on-track feedback on client’s post-treatment symptom scores (Chapter 3). Self-esteem also moderated the effect of situational control on participants’ confidence in their judgments, even when those judgments were accurate (Chapter 1). These results provided further evidence for the important role of individual-difference variables in accounting for the variation in responses to feedback. While we initially examined control as a situational factor, the findings from Chapter 1 suggested that participants may have varied in their interpretations of situational control. These varying perceptions were thus categorised as another individual-difference recipient variable. Further research will be required to establish the extent to which manipulating situational control at an organisational level may impact on individual-level perceptions of control.

In contrast to these positive relationships, self-efficacy, locus of control, and feedback propensity did not explain differences in individuals’ responses to feedback (Chapters 1, 2, and 4). These results were inconsistent with previous studies demonstrating links between the aforementioned individual-difference variables and feedback response in non-clinical settings (Anseel, Beatty, Shen, Lievens, & Sackett, 2013; De Jong, Van Sluis, Nugter, Heiser, & Spinhoven, 2012; Renn & Fedor, 2001). While it was beyond the scope of the present thesis to explain these differences, there is potential for future investigations to explore the reasons for these different research outcomes. It is possible that characteristics like self-efficacy and locus of control exert their influence on more specific or discrete aspects of
thinking, affect, or behaviour, whereas the global nature of self-esteem produces more pervasive effects.

While self-esteem emerged as an important factor in some of our studies, an interesting additional observation was that its effect was not uniform. That is, across the studies, self-esteem did not always exert a consistent effect. For example, trainee therapists’ self-esteem levels were not significantly associated with differences in their perceptions of feedback (Chapter 4), and self-esteem did not moderate the influence of feedback factors on task outcomes (Chapter 2). The inconsistent effects of self-esteem may be attributable to between-study differences in task characteristics (e.g., group therapy vs. relaxation exercise). Indeed, self-esteem effects may vary depending on the type of task and the type of feedback presented. Consequently, our theoretical framework attempted to reconcile these differences by emphasising individual-difference interactions with feedback and situational factors.

**Cognitive-Affective Reactions**

Individual-difference and feedback variables typically function as moderators of the feedback-outcomes relationship. Kazdin (2008) suggested that moderators convey valuable information to therapists about barriers or facilitators of the intervention, even if the moderators do not contribute directly to intervention outcomes. Kazdin also emphasised the importance of understanding mediators or mechanisms of change, as they provide crucial explanations for how an intervention works. We attempted to specify possible mechanisms of feedback response, and Chapter 2 provided preliminary support for participants’ cognitive-affective reactions (particularly their confidence) in mediating the effect of feedback on task outcomes. This mediating role is depicted in Figure 5.1, but the results did not permit further specification of how the increase in participants’ internal confidence and their
more positive task perceptions in turn influenced participants’ behaviour. Additional research would be required to elucidate the connection between internal (cognitive-affective) and external (behavioural) change processes. Other mechanisms responsible for feedback-induced treatment improvements, and how these mediators can be measured reliably and validly, are also of interest. These inquiries call for further experimental work (as demonstrated by the experimental analogues used in Chapters 1 and 2), and randomised controlled clinical trials directed at elucidating change mechanisms.

**Outcomes**

The final component illustrated in Figure 5.1 is the goal or desired outcome of the feedback intervention. In the General Introduction, we raised some caution about concluding that clinical feedback does not work on the basis of lack of change on the outcome measure. A few feedback studies have observed other feedback benefits (reduced hospital readmission rates, improved diagnostic processes, higher ratings of patient satisfaction) despite a lack of improvement in treatment outcomes or health status (Byrne, Hooke, Newnham, & Page, 2012; Espallargues, Valderas, & Alonso, 2000; also see Carlier et al., 2012 for an extensive review). These findings suggest that how the outcomes of interest are defined may dictate the extent to which results indicate that feedback worked.

Findings from the present thesis provided further evidence that feedback effects can vary across different outcome measures within the same study. In Chapter 2 for example, feedback response incorporated different indicators of blood pressure activity levels, subjective relaxation, and changes in muscle tension. Results showed that the three outcomes were differentially influenced by feedback and individual-difference factors. This highlights the importance of specifying clear
definitions of desired outcomes when implementing and evaluating feedback interventions, to gain a more comprehensive understanding of their impact. For clinical feedback interventions, the goal is typically to improve client outcomes (e.g. reduced symptoms), but if feedback enhances other processes or facets of client’s functioning, this would also be valuable to know. Fostering stronger therapeutic alliance and promoting more effective clinical decision-making are examples of outcomes that may be desirable, and that may be predictive of better treatment outcomes. To enable detection of these supplementary feedback effects, researchers may wish to consider employing a selection of outcome and process measures, rather than using a single measure, when evaluating the effectiveness of feedback interventions.

Comparisons to Existing Models of Feedback and Behaviour Change

How does the current proposed theoretical framework compare to, or complement, existing theories of feedback and behaviour change? Similar to Riemer and colleagues’ (2005) conceptualisation of the CFIT theory (introduced in Chapter 1; Figure 1.1), the current theoretical framework provides an account of feedback mechanisms occurring at the micro-level, and can be couched within macro-level behavioural and therapeutic change processes. In assembling the framework, we emphasised the value of identifying mediators and moderators of feedback interventions. The specification of moderators and mediators within feedback theory is not novel, and is referred to in varying degrees within existing feedback theories (e.g., Kluger & DeNisi, 1996; Riemer et al., 2005). For example, the Feedback Intervention Theory (FIT) proposed by Kluger and DeNisi (1996) acknowledges interactions between feedback, situational and individual-difference variables. This theory identifies three levels of processes (self, the focal task, and specific task-
learning strategies) at which feedback can affect task performance behaviours. While these three levels may be neatly identified in therapists’ use of feedback for decision-making and learning, the boundaries between self, focal task and task-learning processes may not be as easily partitioned for a client engaging in therapy. Consequently, a feedback theory that can be applied to the therapeutic experience would be valuable.

In line with this, our proposed theoretical framework specifies how feedback, individual-difference, and contextual variables may be connected to each other within the feedback process (clinical or otherwise), and provides a basic template for which these connections can be empirically tested in future research. We believe that an advantage of this design, as previously described, is that researchers and therapists can use the template to test variables that suit their context of practice. The flexibility with which researchers can adjust the variables included in the framework also emphasises the dynamic nature of the feedback intervention, in that feedback can be tailored to suit the needs of the recipient (including therapists’ theoretical orientation, and the framework within which they practice). By way of illustration, the CFIT theory assumes that the therapist is committed to evidence-based practice, and pays attention to and accepts the feedback. However, not all therapists will engage with feedback, in which case providing feedback information will not yield behaviour change. Our model treats commitment to evidence-based practice, and acceptance of feedback, as individual-difference variables which interact with feedback elaboration. Given that feedback characteristics can influence feedback elaboration, we can test how modelling feedback delivery based on therapists’ specific attitudes might increase the likelihood of them accepting and using the
feedback. Correspondingly, our framework may also be viewed as an expansion of the feedback component of the CFIT theory.

Clinical feedback trials thus far have examined the direct relationship between feedback provided and outcomes, leaving the intermediary mechanisms largely unexplored. As emphasised throughout this thesis, the lack of a clear feedback theory limits our ability to provide prescriptive guidelines on how feedback can be delivered most effectively and efficiently to clients and therapists. The variables that we have identified throughout this thesis are far from forming a thorough clinical feedback theory, but the proposed framework provides a heuristic that can guide future feedback research. It also allows for interim recommendations as to how therapists can use feedback with clients, as we describe in the next section. Implementation of these recommendations in naturalistic settings would assist in evaluating their effectiveness and utility.

**Preliminary Clinical Recommendations and Considerations**

In this section, we draw upon the thesis’ findings and resulting theoretical framework to propose preliminary practical guidelines for sharing feedback with clients, and for supporting therapists’ development of effective feedback practices.

**Sharing Feedback with Clients**

Sharing feedback with clients is a way of integrating the information into therapy to guide ongoing treatment (Yates, 2012). A number of qualitative studies and surveys have been conducted in recent years to try and understand what therapists do with the feedback, and how they discuss it with their clients (Lutz, Böhnke, Köck, & Bittermann, 2011; Sundet, 2012; Yates, 2012). As highlighted by our framework, the discussion that ensues from the feedback may be critical in determining the effectiveness of feedback on treatment outcomes. The current
findings contributes to the process by drawing therapists’ attention to the need to consider individual differences between clients when delivering feedback. The client’s self-esteem in particular, appears to impact how the client responds to feedback, especially if the feedback indicates the client is not doing well (Chapter 3). Almost counter-intuitively, we found that clients with high self-esteem showed poorer symptom scores if they received not-on-track feedback compared to no feedback.

Delivering and receiving negative feedback can be tricky and unpleasant (Ilgen & Davis, 2000). We observed in Chapter 2 that providing not-on-track feedback to participants produced less positive cognitive-affective reactions that in turn attenuated relaxation effects. Trainee therapists also rated not-on-track feedback as “diminishing client’s self-esteem” (Chapter 4), suggesting that they may already be sensitive to the effects that presenting not-on-track feedback might have on clients. It is important that future studies attempt to pick apart the perceptions that therapists hold about the effects of sharing not-on-track feedback with clients, as these perceptions may increase therapists’ reservations about using feedback. This possibility mirrors emerging evidence of therapists’ reluctance to implement evidence-based therapies such as exposure therapy for anxiety disorders, due to concerns that clients will experience discomfort and decompensate (Deacon et al., 2013). However, these concerns are often not empirically supported, and withholding evidence-based therapies from the client may minimise potential treatment gains that could be made (Meyer, Farrell, Kemp, Blakey, & Deacon, 2014).

If providing feedback is beneficial to clients, particularly when they are not-on-track, then therapists need to be aware of the evidence for and against these
feedback interventions to make informed decisions about feedback use. The thesis findings collectively suggest that therapists may need to be mindful of how a client with high self-esteem interprets and reacts to not-on-track feedback. Kluger and DeNisi (1996) suggested that pairing feedback with a goal-setting intervention might direct attention to the task at hand (i.e., therapy) and away from the self (e.g., negative self-evaluations). Goal-setting is a standard part of most therapies, and thus likely to be a feasible and effective component to complement feedback systems.

The use of referent standards (the ipsative or normative standard against which one’s progress is compared) may also influence the impact of presenting feedback to clients. In Chapter 4, the visual style of feedback was varied to depict different referent standards (expected treatment response, clinical significance, and length of stay). Trainee therapists perceived different referent standards to be useful for communicating information about client’s progress in comparison to previous progress, or to other similar clients. However, they did not find the use of referent standards in feedback useful for communicating other treatment-related discussions (e.g., decisions to extend or terminate therapy). In addition, we found that the first two styles of presentation had a larger perceived impact on client’s self-esteem (i.e., more enhancing if on-track or more diminishing if not-on-track) compared to the third style of presentation. This raises the question of how we can use (or remove) referent standards when presenting not-on-track feedback, to facilitate rather than inhibit further enhancement of client’s outcomes. The inclusion of referent standards is a modifiable aspect of presenting feedback, and matching the use of referent standards to the client’s characteristics may be a viable solution for reducing negative effects that feedback may have on clients. Given that feedback discussions may play an important part in enhancing treatment outcomes, researchers and
therapists are encouraged to consider how feedback can be presented to maximise the clinical conversations arising from it.

Our theoretical framework emphasises the role of feedback elaboration in influencing feedback-induced outcomes, and therapists appear to recognise this role based on their reports of feedback use with clients (Lutz et al., 2011; Yates, 2012). Ongoing efforts to study how feedback is shared between therapists and clients in naturalistic settings will likely contribute to understanding how feedback can foster collaborative practice and increase client’s participation in therapy. This makes feedback an attractive tool for therapists, and prompts us to consider how we can facilitate therapists’ use of feedback.

**Promoting Therapists’ Use of Feedback**

Drawing from our theoretical framework, therapists’ use of feedback may be promoted by targeting therapists’ individual-difference characteristics and feedback elaboration. These aspects can be addressed via clinical training and supervision. In several parts of this thesis, we have described instances in which supervision may assist therapists in using feedback to guide their therapy and their clinical decision-making. Supervision is recognised as an important and essential resource through which trainee therapists develop skill competencies and shape their professional identities (Bambling & King, 2000). There is evidence to show that providing ongoing supervision to therapists confers therapeutic benefits to clients in terms of better working alliance, greater treatment satisfaction, higher therapy completion rates, and larger reductions in depression scores compared to unsupervised therapists delivering the same treatment (Bambling, King, Raue, Schweitzer, & Lambert, 2006). Thus, supervisors can play a major role in shaping therapists’ use of feedback.
to monitor and evaluate their conduct of therapy and its effect on the client, as well as to assess the development of therapy skills.

In Chapter 1, we found that providing feedback to participants was successful in improving their decision-making accuracy, suggesting that therapists may benefit from using feedback in their decision-making as well. Conversely, the experimental manipulation of situational control did not impact on decision-making accuracy, but did negatively influence confidence, such that participants felt less confident in their judgments if they had control over the treatments administered. Extrapolating to clinical practice, the level of actual or perceived control that therapists have over the use of feedback may influence their response to using the feedback – this is accounted in our theoretical framework as an individual-difference characteristic. Increasing confidence in accurate responding is a crucial step in the learning process, and feedback has been shown to foster increased confidence (Butler, Karpicke, & Roediger, 2008). That our study showed the opposite effect when participants had control over treatment choice suggests that learners may benefit from being supported especially in the early stages of using feedback. Clinically, this implies a role for supervision initiatives, given that the goal of feedback systems and supervisory initiatives is the same – improving the quality of care and enhancing therapists’ practice (Worthen & Lambert, 2007).

Supervisors can assist in building therapists’ competence and self-efficacy in using feedback with clients (Sapyta et al., 2005). Our findings suggest that where therapists may have lower self-esteem (or self-efficacy), affording them less control over when and how to implement feedback may be desirable. Accordingly, a stepped approach may be helpful at targeting therapists with varying levels of experience with using feedback interventions. At the first step when therapists are inexperienced
with using feedback interventions, supervisors may need to provide more structure
and directions about how to use feedback. At a second step, when therapists have
had sufficient successful experiences with clients to gain mastery and confidence,
supervisors may be less directive and provide support in troubleshooting more
complex cases. With subsequent steps, the therapist becomes increasingly able to
implement feedback independently. We also found that self-esteem moderated the
effects of control on confidence. Therefore, attuning to trainees’ self-esteem may
enable supervisors to address potential barriers to the effective implementation of
feedback with clients.

**Future Research**

Clinical feedback interventions have steadily been adopted across various
treatment settings, but have met with barriers to implementation (Boswell, Kraus,
Miller, & Lambert, 2013b; Seow, Sng, & Page, 2013). Like all other tools for
improving the quality of client care, future research prospects abound for increasing
its absorption into routine practice. We focused on building our theoretical
knowledge of clinical feedback interventions, as a stronger theoretical backbone can
provide useful explanations for why feedback works and how it can be used
effectively. In our current model, we described feedback elaboration in the context of
the therapist-client dialogue; however, feedback elaboration can involve other
processes such as therapist-supervisor dialogue or implementation of follow-up
clinical support tools. For example, therapists may administer clinical support tools
as a means of seeking further information to clarify the initial feedback message. The
results from the clinical support tools then direct attention to specific problem areas,
thereby guiding the therapist’s next response (e.g., addressing social support,
engaging in motivational interviewing). These feedback elaboration processes may
vary between clients and therapists, and therapists may be required to make clinical judgments about which process to undertake to ensure the best outcome from the feedback intervention. Thus, two other avenues for further development are developing an understanding of what therapists and clients currently do with the feedback, and identifying how therapists can be up-skilled to use feedback more frequently and effectively. Both initiatives are likely to enhance the field’s capacity to embrace and sustain effective feedback systems.

What do Therapists and Clients do with the Feedback?

Numerous studies have shown the value of clinical feedback, therefore facilitating a shift from the question of “Does feedback work?” to “How does feedback work?” This shift in perspective encourages researchers to adopt a process rather than outcomes approach to feedback research. The present thesis examined clients and therapists as separate recipients of feedback, but the collaborative aspect of therapy is clearly important for successful treatment (and would need to be accounted for in feedback theory). It would be helpful to know more about what therapists and clients are already doing with the feedback, and whether or how this contributes to collaborative therapy. A series of qualitative studies and surveys have recently been undertaken to explicate how therapists use feedback (Sundet, 2012; Yates, 2012), and to explore therapists’ and clients’ perceptions of feedback (Norman, Dean, Hansford, & Ford, 2013; Unsworth, Cowie, & Green, 2012). After identifying how therapists and clients use feedback, the next step would be to link the specific feedback elaboration processes to treatment outcomes to identify which processes are more likely to enhance the benefits of feedback. The latter endeavour would lead to increasingly specific tips on how to augment the effectiveness of
feedback with clients, particularly through targeting the feedback presentation and feedback elaboration components of the proposed model.

**Practice-research networks.** The proposed theoretical framework has potential to guide investigations aimed at improving feedback practice, and data from real-world practice is necessary to substantiate the validity of the framework. The theoretical framework has limited value if it is not feasible for implementation in real-world practice. Accordingly, therapists’ experience and knowledge can make major contributions to the line of inquiry about how feedback is used. Indeed, therapists describe tailoring the delivery of feedback to clients on a case-by-case basis, depending on their presenting problems and individual characteristics (Yates, 2012). A closer examination of the decision-making processes underpinning feedback delivery will allow us to identify what already works in practice, preventing reinvention of the wheel. Enlisting therapists to participate in research aligns closely with the ideals of practice-research networks – collaborative networks established between researchers and therapists who are interested in conducting clinical research (Castonguay, Barkham, Lutz, & McAleavey, 2013). Establishing practice-research networks dedicated to investigating change mechanisms of feedback would allow researchers to capitalise on therapists’ expertise, and enable therapists to play an active role in producing research.

**Feedback-focused Training Initiatives**

Due to the wealth of new information emerging daily, successful implementation of healthcare practices will not occur solely via the passive diffusion of information to practitioners (Balas & Boren, 2000). Therefore, active and innovative efforts are required. Significant mentors, graduate training, and clinical supervision have been cited as some of the major influences on therapists’ decisions
to adopt and use new psychotherapies (Cook, Schnurr, Biyanova, & Coyne, 2009). Inculcating the tools for effective feedback delivery from an early developmental stage may promote trainees to continue its use in their professional practice. We have also previously highlighted the benefits of receiving ongoing supervision, for both the process and outcomes from therapy (Bambling et al., 2006). Accompanying supervision initiatives to support therapist training would boost feedback use among trainees and early-career therapists. Supervision or formal consultations can also assist therapists in learning how to respond effectively if feedback indicates that the client is not doing well. The possibility of incorporating feedback into routine training programs and supervision should hence be explored further.

For therapists who are already using feedback in their practice, research efforts may be devoted to identifying conditions that promote sustained use and reduce the chances that therapists will terminate use due to obstacles experienced. This is in line with recent efforts to develop an online motivational tool for therapists to identify barriers to the adoption of outcomes measures, or reasons for why therapists stopped using outcomes measures (Kowalyk, Ionita, & Fitzpatrick, 2013). Finally, for therapists who are ambivalent about using feedback, exploration of their perceptions towards feedback may elucidate barriers to adoption. Willis, Deane, and Coombs (2009) also demonstrated how a brief intervention presenting clients and clinicians’ positive experiences of outcomes monitoring subsequently improved mental health practitioners’ attitudes towards the use of outcomes measures. The development and evaluation of similar programs targeting feedback use may be effective in promoting positive attitudes and encouraging adoption of feedback into practice.
General Conclusions

Therapists are committed to providing quality care for their clients, and feedback is one tool that can add value to therapists’ practice. However, a lack of clear understanding about the active feedback mechanisms has likely contributed to its slow dissemination into routine practice. A comprehensive clinical feedback theory would assist in guiding further practical applications of clinical feedback. Such a theory would need to adopt a multi-dimensional view that encompasses interactions between individual-difference, feedback, and contextual variables (Shute, 2008). These complex interactions remind us that “there is no simple recipe for the delivery of feedback” (Eva et al., 2012, p. 25). Collaborations between researchers and therapists can help to further our understanding of how feedback works, and how it can be tailored to suit the individual needs of clients and therapists. Our theoretical model emphasises the importance of understanding what goes on between providing feedback and the final measured outcomes. Accordingly, practical guidelines developed from this framework may enable more targeted feedback interventions, and afford greater control over the effectiveness of feedback so as to maximise therapeutic outcomes for clients.
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Appendix A

Graphs featuring Patient with On-track Status

GRAPH 1

Graph 1 below shows two “tram lines” (the thin orange lines), which represent the upper and lower boundaries of the expected therapy response curve. This curve is calculated based on the progress of previous inpatients, thus represents the typical trajectory of progress for the average inpatient.

Jane’s scores are represented by the thick orange line with dots for each point of measurement. Please spend a moment to consider how you would interpret Jane’s progress, and what kind of conversation you might have during your next session with her.

There are 13 questions on the next page. For each question, please circle how USEFUL you think the graph would be in helping you to have a discussion with Jane about particular aspects of the therapy, using the following scale:

Graphs were presented in randomized order.
GRAPH 2

This graph comprises four different coloured bands against which the patient’s scores on the symptom measure will be mapped. Scores from a previous cohort of patients were used to determine the demarcations for the coloured bands. The red band signifies deterioration (i.e. worsening of reported symptoms), while the orange band signifies no significant change in symptom scores. If the patient made reliable improvement, their score would move into the green band and if their score was lower than the cut-off for the “healthy” range, they would be in the blue band.

Jane’s scores are represented by the thick black line with dots for each point of measurement. Please spend a moment to consider how you would interpret Jane’s progress, and what kind of conversation you might have during your next session with her.

As in Graph 1, there are 13 questions on the next page for Graph 2. For each question, please circle how USEFUL you think the graph would be in helping you to have a discussion with Jane about particular aspects of the therapy, using the following scale:

Not useful at all/ N/A  Somewhat useful  Very useful
GRAPH 3

This graph shows three blue zones of increasing intensity (from L to R: pale blue, medium blue, and dark blue) against which the patient’s scores on the symptom measure will be mapped. The demarcations for the zones were derived from a previous cohort of patients: patients were divided into three groups based on length of stay, and their average progress mapped. Accordingly, patients with shorter lengths of stay often had most of their scores in the pale blue zone, suggesting lower severity of depressive symptoms, and a quicker time to recovery than patients whose scores fell mostly in the medium blue zone. Patients with the longest length of stays tended to have scores that fell mostly in the dark blue zone, suggesting greater severity of depressive symptoms, and a longer time to improve.

Jane’s scores are represented by the thick black line with dots for each point of measurement. Please spend a moment to consider how you would interpret Jane’s progress, and what kind of conversation you might have during your next session with her.

As in Graphs 1 and 2, there are 13 questions on the next page. For each question, please circle how USEFUL you think the graph would be in helping you to have a discussion with Jane about particular aspects of the therapy, using the following scale:

Not useful at all/ N/A Somewhat useful Very useful
Appendix B

Graphs featuring Patient with Not-on-track Status

GRAPH 1

This graph comprises four different coloured bands against which the patient’s scores on the symptom measure will be mapped. Scores from a previous cohort of patients were used to determine the demarcations for the coloured bands. The red band signifies deterioration (i.e. worsening of reported symptoms), while the orange band signifies no significant change in symptom scores. If the patient made reliable improvement, their score would move into the green band and if their score was lower than the cut-off for the “healthy” range, they would be in the blue band.

Jane’s scores are represented by the thick black line with dots for each point of measurement. Please spend a moment to consider how you would interpret Jane’s progress, and what kind of conversation you might have during your next session with her.

There are 13 questions on the next page. For each question, please circle how USEFUL you think the graph would be in helping you to have a discussion with Jane about particular aspects of the therapy, using the following scale:

0 Not useful at all/ N/A
1 Somewhat useful
2
3
4
5
6 Very useful
GRAPH 2

This graph shows three blue zones of increasing intensity (from L to R: pale blue, medium blue, and dark blue) against which the patient’s scores on the symptom measure will be mapped. The demarcations for the zones were derived from a previous cohort of patients: patients were divided into three groups based on length of stay, and their average progress mapped. Accordingly, patients with shorter lengths of stay often had most of their scores in the pale blue zone, suggesting lower severity of depressive symptoms, and a quicker time to recovery than patients whose scores fell mostly in the medium blue zone. Patients with the longest length of stays tended to have scores that fell mostly in the dark blue zone, suggesting greater severity of depressive symptoms, and a longer time to improve.

Jane’s scores are represented by the thick black line with dots for each point of measurement. Please spend a moment to consider how you would interpret Jane’s progress, and what kind of conversation you might have during your next session with her.

As in Graph 1, there are 13 questions on the next page for Graph 2. For each question, please circle how USEFUL you think the graph would be in helping you to have a discussion with Jane about particular aspects of the therapy, using the following scale:

Not useful at all/ N/A Somewhat useful Very useful
GRAPH 3

Graph 3 below shows two “tram lines” (the thin orange lines), which represent the upper and lower boundaries of the expected therapy response curve. This curve is calculated based on the progress of previous inpatients, thus represents the typical trajectory of progress for the average inpatient.

Jane’s scores are represented by the thick orange line with dots for each point of measurement. Please spend a moment to consider how you would interpret Jane’s progress, and what kind of conversation you might have during your next session with her.

As in Graphs 1 and 2, there are 13 questions on the next page. For each question, please circle how USEFUL you think the graph would be in helping you to have a discussion with Jane about particular aspects of the therapy, using the following scale:

Not useful at all/ N/A Somewhat useful Very useful
Appendix C

Summary Questions about the Feedback Graphs

1. (a) If giving feedback to Jane, please rank the graphs in order of preference (1-3; 1 = most preferred):

   ![Graphs]

   Rank for Graph 1: _____        Rank for Graph 2: _____       Rank for Graph 3: _____

   (b) Please briefly explain the reasons for your choice above:

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

2. Which graph do you think would best help Jane to understand her progress in therapy? (Please circle)

   Graph 1            Graph 2            Graph 3            No difference expected

3. Place three crosses along the line below to indicate the impact that you think presenting each graph to Jane would have on her self-esteem. Make sure that you indicate the number of the graph you are referring to (1, 2 or 3) next to each cross, like this: __× 1

   ![Crosses]

   Diminishes self-esteem       No effect on self-esteem       Enhances self-esteem

Additional comments about the individual graphs, or questionnaire overall

(optional):

__________________________________________________________

__________________________________________________________

__________________________________________________________

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5 Graphs presented for question 1 varied based on the progress status condition and the order of presentation within the respective questionnaire booklet.