

Goal motives and mental contrasting with implementation intentions facilitate strategic goal persistence and disengagement

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Funding information

Australian Research Council

Abstract

In three experiments, we examine the role of motives underlying goal pursuit and the metacognitive strategy of mental contrasting with implementation intentions (MCII) to predict the strategic use of self-regulation responses (persistence, disengagement, and reengagement) when faced with attainable, unattainable, or multiple goals. We trained half of the participants to use MCII and treated the rest as control. Experiment 1 ($N = 261$) underscored the role of autonomous motivation in nurturing adaptive cognitive appraisals and coping mechanisms, which facilitated persistence and progress with a difficult but attainable goal. In contrast, controlled motives undermined striving by predicting threat appraisals and giving up coping. MCII training ameliorated the negative impact of controlled motivation on goal striving by reducing threat appraisals. In Experiment 2 ($N = 391$), we manipulated the task to make the initial goal unattainable. Strategic goal striving (disengagement from the unattainable goal followed by reengagement with an alternative goal) was facilitated by MCII and autonomous goal motives, and culminated in increases in positive affect. In Experiment 3 ($N = 432$), we extended these findings to a multiple-goal setting. The research further develops the literatures on self-regulation and self-determination, while having implications for life domains where individuals pursue multiple and/or difficult goals.

“Pain is temporary. Quitting lasts forever.”

—Lance Armstrong

1 | INTRODUCTION

In Greek mythology, Sisyphus was a king punished to roll an immense boulder up a hill, only to watch it roll back down, and to repeat this action for eternity. This story illustrates one of the most evocative

images of futile goal persistence. Perseverance in the pursuit of an important goal has often been glorified in ancient and modern cultures. In contrast, giving-up is frequently taken as an indication of lack of determination, as per Lance Armstrong's quote. Variations on the old adage “never give up” are commonplace in a variety of settings such as work, education, and sports. Armstrong's dubious professional behavior suggests that perhaps he is not the best person to take advice from when it comes to goal striving. Is persistence *always* the preferable option?

Persistence and commitment are integral aspects of goal striving (Locke & Latham, 2015), with sustained effort over time often

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considered a requisite for overcoming obstacles and hardship during the goal attainment process (Howard & Crayne, 2019). There are, however, cases in which an obstacle cannot be overcome—for example, when there are inadequate resources, competing demands, other important goals, or the goal is simply too difficult. Under such circumstances, persistence with an unattainable goal results in repeated failure experiences, which have been associated with physical and psychological ill-being (Barlow et al., 2020; Lench & Levine, 2008; Wrosch et al., 2007). Persistence is necessary to attain difficult goals, yet it is self-defeating for unattainable goals (Wrosch, 2011).

The negative consequences of futile persistence can be avoided if an individual can disengage successfully from the unattainable goal (Carver & Scheier, 2005). Disengaging by accepting goal unattainability enables individuals to move on from the goal and reengage with alternative pursuits (Carver & Scheier, 2005, 2017). Goal reengagement can take various forms, such as pursuing an adjusted version of the goal, a different path to the same goal, or a new goal (Wrosch et al., 2003). Disengaging from an unattainable goal and reengaging prevents the accumulation of failure experiences, frees up personal resources for future goal striving, and fosters subjective well-being (Wrosch & Scheier, 2020).

An individual's motives for striving influence whether they choose to persist or disengage from goal pursuit (Gaudreau et al., 2012); however, the selection of self-regulatory responses is not always optimal. Some individuals choose to persist futilely with an unattainable goal, while others choose to disengage at the slightest setback. In their Tripartite Model of Goal Striving, Ntoumanis and Sedikides (2018; Figure 1) suggest that the metacognitive strategy of mental contrasting with implementation intentions (MCII; Oettingen & Gollwitzer, 2010) could potentially be used to moderate the influence of motives on self-regulatory responses and encourage the strategic selection of self-regulatory behavior, which in turn should impact goal-related outcomes, including goal progress, psychological well-being, and the ability to manage multiple goals. The current program of research aims to test these proposals. In the following sections, we highlight empirical evidence supporting the involvement of goal motives and MCII in influencing decisions to persist, disengage, and reengage with goals. We then present an overview of three experiments that aimed to test whether motives and MCII interact to strengthen persistence towards attainable goals, disengagement/reengagement when faced with unattainable goals, and management of multiple goals through the strategic selection of persistence, disengagement, and reengagement.

1.1 | Goal motives influence persistence, disengagement, and reengagement

According to Self-Determination Theory (SDT; Ryan & Deci, 2017), goal motives fall into two broad and opposing categories. *Autonomous motives* indicate that goal striving is driven by the innate

enjoyment and fulfillment associated with the pursuit of the goal (intrinsic motives) or because of the goal's personal importance (identified motives). Conversely, *controlled goal motives* encapsulate goal striving prompted by external demands or pressures (external motives) or because of self-worth contingencies and internal pressures (introjected motives).

Building on SDT, the Self-Concordance Model (Sheldon & Elliot, 1999; Sheldon, 2014), asserts that autonomous motives should promote effort, which in turn should encourage persistence and goal attainment. Meta-analytic data provide evidence for the role of effort-based coping strategies in moderating the relation between autonomous motivation and persistence (Gaudreau et al., 2012). Furthermore, Ntoumanis, Healy, Sedikides, Duda, et al. (2014) have demonstrated that participants with strong autonomous motives appraise goals as challenges, leading to engagement in effort coping, and persistence. However, participants with controlled motives are more likely to appraise goals as negative threats and use coping strategies associated with giving-up, which are ineffective at promoting persistence (Ntoumanis, Healy, Sedikides, Duda, et al., 2014).

Given that autonomous motives are linked to persistence, it is unsurprising that autonomously motivated individuals find it difficult to let go of goals, even if these become unattainable. For example, when goal unattainability was artificially induced by manipulating task feedback in a laboratory setting, individuals with autonomous goal motives spent more time and exerted more effort coping on the task (Ntoumanis, Healy, Sedikides, Smith, et al., 2014). Additionally, autonomous motives were associated with lower ratings of the cognitive ease of disengagement from the unattainable goal (Ntoumanis, Healy, Sedikides, Smith, et al., 2014). This finding has also been replicated in field studies with athletes (Mulvihill et al., 2018; Smith & Ntoumanis, 2014). Interestingly, although autonomous motives have been associated with increased difficulty in cognitively disengaging from an unattainable goal, they predict the cognitive ease of reengagement and rates of reengagement with an alternative goal (Ntoumanis, Healy, Sedikides, Smith, et al., 2014; Smith & Ntoumanis, 2014).

From a researcher's standpoint, the problem of efficacious goal pursuit is twofold. One would need to facilitate persistence with difficult but attainable goals (particularly if these stem from controlled motives), and also timely goal disengagement and reengagement when faced with unattainable goals (particularly if such goals are driven by autonomous motives). According to the Tripartite Model (Ntoumanis & Sedikides, 2018), this might be achieved through the use of MCII.

1.2 | Can MCII encourage persistence with attainable goals and disengagement from unattainable goals?

MCII is a trainable strategy that first involves individuals visualizing the attainment of their goal in the future and contrasting this with

their current goal status (mental contrasting). Expectations of attaining the desired goal become activated through mental contrasting (Oettingen, 2012). Followingly, the individual forms appropriate “If-then” plans (implementation intentions) that can be automatically activated to direct goal striving when obstacles are encountered (Gollwitzer & Sheeran, 2006). When expectations of goal attainment are high, people using MCII increase commitment to their goal pursuit, whereas, when expectations are low, people reduce commitment to goal pursuit (Henderson et al., 2007; Kappes et al., 2012; Legrand et al., 2017). The use of MCII should therefore help people discriminate between feasible and unfeasible goals and appropriately modify their approach either to maintain persistence towards attainable goals or disengage from pursuit of unattainable goals and reengage with an alternative mode of striving (Martijn et al., 2008).

MCII has been implemented in several applied contexts, such as emotion regulation (Schweiger et al., 2018), increasing hours of study for individuals in higher education (Clark et al., 2020), collaborative problem solving (Kirk et al., 2013), and encouraging healthy behavior (Adriaanse et al., 2010; Cross & Sheffield, 2019; Mutter et al., 2020). Wang et al. (2021) meta-analyzed 21 studies using MCII and found a small to medium effect size ($g = 0.336$) for improving goal attainment. They also obtained evidence of publication bias in the literature, which highlights the need to publish sound research on MCII irrespective of the statistical significance of the identified effects. Furthermore, the vast majority of both applied and laboratory-based literature focuses on using MCII to enhance striving for attainable goals. Whether MCII can be used to promote strategic goal adjustment in the face of unattainable goals remains an under-explored topic.

1.3 | Can MCII moderate tendencies engendered by motivation?

To pursue goals successfully, individuals must make strategic decisions about whether their current resources, abilities, and goal-striving approach will allow them to progress with, and ultimately attain, their goal. Individuals who judge the likelihood of goal attainment to be high should engage in effort coping and persist with striving. Alternatively, those who judge attainment to be unlikely should disengage and seek another way to achieve their goal. Acting in this manner maximizes the chances of reaping the psychological benefits of goal attainment and avoiding the negative consequences of futile persistence (Wrosch & Scheier, 2020). However, doing so is not always cognitively straightforward, given that goal motives can influence an individual's propensity to persist or disengage. Although a variety of trainable strategies exist to facilitate goal persistence (Abdulla & Woods, 2021), sometimes decisions need to be made about when to adjust a goal. MCII has been identified as a promising candidate due to its capacity to encourage different self-regulation responses based on the expected attainability of the goal (Kappes et al., 2012).

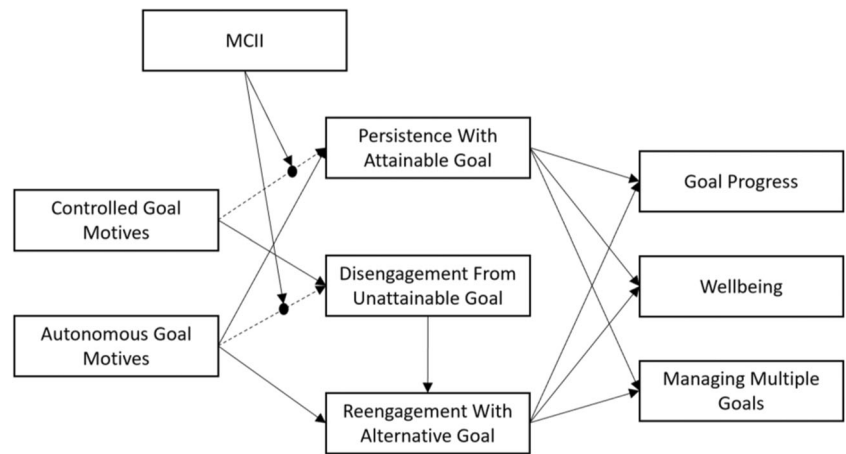
The Tripartite Model (Ntoumanis & Sedikides, 2018) provides a framework for understanding *when* and *why* MCII will be most effective for facilitating goal pursuit. For attainable goals, individuals with controlled motives stand to reap the greatest benefits from MCII given that they lack commitment and exhibit less persistence than individuals with autonomous motives (Gaudreau et al., 2012; Koestner et al., 2008). For unattainable goals, MCII should be most beneficial for individuals who have high autonomous goal motives. Given that autonomously motivated individuals may struggle with disengaging from their goals (Ntoumanis, Healy, Sedikides, Smith, et al., 2014), MCII should contribute to more accurate and/or earlier assessments of their goal's attainability (Oettingen, 2012), resulting in timely disengagement. Timely disengagement provides increased opportunities to reengage, which has been related to higher rates of alternative goal progress (Wrosch et al., 2003), greater well-being (Barlow et al., 2020), and the ability to balance competing goals (Kung & Scholer, 2020).

1.4 | Overview

In three experiments, we examine how individuals can maximize the efficient use of their limited resources when facing difficult but attainable goals, unattainable goals, or multiple goals that cannot be attained simultaneously. In Experiment 1, we investigate how goal motives and MCII can strengthen persistence when goals are attainable. We also test proposed moderators of persistence (i.e., appraisals and coping; Ntoumanis, Healy, Sedikides, Duda, et al., 2014). In Experiment 2, we address how motives and MCII facilitate disengagement and reengagement when faced with an unattainable goal and the effects that the behavioral choices of disengagement or reengagement have on well-being. We also test proposed moderators of disengagement and reengagement (i.e., cognitive ease of disengaging/reengaging; Ntoumanis, Healy, Sedikides, Smith, et al., 2014). Finally, in Experiment 3, we investigate how individuals manage multiple goals that cannot be attained in parallel by using strategic persistence, disengagement, and reengagement. Here, we also test how the previously examined moderators of persistence and disengagement/reengagement act in combination.

Taken together, these experiments test individual aspects of the overarching model presented in Figure 1 and probe whether MCII and goal motives can foster the strategic selection of self-regulatory responses (persistence/disengagement/reengagement) that maximize an individual's likelihood of attaining their goals. Throughout this article, we use the term *strategic goal pursuit* to refer to the appropriate selection of persistence or disengagement/reengagement, depending on which is most likely to result in sustained goal progress and ultimately attainment based on a goal's attainability. Following a description of the common methods and materials used in the three experiments, we detail the hypotheses and results for each experiment.

FIGURE 1 The Tripartite Model of Goal Striving (modified from Ntoumanis & Sedikides, 2018). Note: Solid lines represent positive relations; broken lines represent negative relations; filled circles represent interactions.



2 | GENERAL METHODS

2.1 | Preregistration and open data

We preregistered all experiments on the Open Science Framework. Preregistrations, data sets, research materials, and R scripts for data analysis can be found at https://osf.io/wbzdxd/?view_only=e92be0a7083c46ef832878729e518bb4. An amendment was made to registered Experiment 3 (<https://osf.io/dsxa3/>). The preregistration offers a conceptual overview of the experiments and should be treated as a guide for the concepts and hypotheses tested; however, some changes emerged during the course of the experiments. For transparency, we outline these changes here. Thanks to the introduction of a new tool (pwrSEM; Wang & Rhemtulla, 2021) to conducting Monte Carlo power simulations for structural equation models, we revised our power estimates for all three experiments.

2.2 | General procedure

We ran all experiments online on the Qualtrics platform and followed the same general procedure. We recruited participants from the general population via Prolific Academic. All participants were English native speakers to ensure that competence with the English language was consistent across experiments and would not obfuscate performance on the Remote Associates Test (see below). Most participants resided in the United States, United Kingdom, Canada, Australia, New Zealand, or Ireland, but represented a diverse range of ethnic backgrounds that included individuals born in other countries (i.e., Czech Republic, Guyana, Indonesia, Jamaica, Philippines, South Africa, United Arab Emirates, and Vietnam). Although detailed ethnographic information was unavailable, the general overview of Prolific Academic's participant pool indicates that most Prolific Academic workers are Caucasian (<https://www.prolific.co/demographics/>). No individual took part in more than one experiment.

In all experiments, we conducted a power analysis for the planned structural equation model (SEM) using Monte Carlo

simulations in pwrSEM (Wang & Rhemtulla, 2021). In particular, we calculated the sample size required to provide a priori power greater than 80% for detecting hypothesized path coefficients in all models with $\alpha = .05$. We did not hypothesize some effects (i.e., MCII \times Autonomous Motives interaction in Experiment 1, MCII \times Controlled Motives interaction in Experiment 2), but included them in the models for completeness. The estimated coefficients of these effects were small, and thus the a priori power was less than 80% to detect them. Unrealistically large samples would have been required to detect these effects, given that we expected the path coefficients to be negligible. We provide outputs of the power analyses in Supporting Information. We also report in Supporting Information path coefficients and *p* values for all significant and Nonsignificant effects for the models implemented in each experiment. We determined the sample size before any data analysis for all three experiments.

Participants completed a consent form and a demographics questionnaire, as well as measures of personality, goal striving tenacity (all experiments), and goal striving flexibility (Experiments 2 and 3 only). Participants read a description of the experiment-specific task and goal. A cover story informed them that the experiment involved a challenging task measuring either "creative potential" (Experiments 1 and 2) or "verbal and spatial ability" (Experiment 3), and that, if they achieved their goal, they would be eligible to take part in further well-paid studies. Then, they completed several practice examples to familiarize themselves with the task, and rated their goal motives and goal difficulty/efficacy/importance. Next, they were randomly assigned to MCII training or a control exercise, after which they completed the main task for the experiment. Finally, they completed experiment-specific measures and were debriefed. All experiments were approved by the Curtin University Human Research Ethics Committee.

2.3 | Remote associates test

Participants in both conditions across all experiments completed the Remote Associates Test (RAT; Mednick, 1962). In this task,

participants are presented with three words, which can all be made into new, compound words with the addition of a word common to all three compounds. For example, the words “light,” “dream,” and “break” could be made into “daylight,” “daydream,” and “daybreak” by adding the shared word “day.” We selected items from a database of 144 RAT items developed by Bowden and Jung-Beeman (2003). This database also contains normative data regarding the percentage of participants who solved each item within specific time limits. The normative data guided the selection of items to create tasks with a level of difficulty required for the unique aims of each experiment. We also ran pilot studies to meet the specific difficulty requirements of the task in each experiment. We used a slightly modified version of the RAT in Experiment 2 in which six items did not have solutions, making the task impossible. Piloting ensured that participants found the RAT in Experiment 2 challenging but did not immediately suspect it was impossible.

2.4 | Raven's Progressive Matrices (Experiments 2 and 3)

We used a subset of items from Raven's Progressive Matrices (Raven & Court, 1938) as an alternative or additional task in Experiments 2 and 3. We showed participants a series of shapes that evolved in a specific pattern, with the final piece of the series missing. We gave them either six or eight patterned tiles from which to choose and asked them to select the option that completed the main pattern. We presented 20 matrices with difficulty ranging from extremely easy to extremely difficult. We presented matrices one at a time in a separate random order for each participant. If participants were unsure of a solution, they could click a button to generate a new random pattern.

2.5 | Mental contrasting with implementation intentions training and control

We developed the MCII training based on previous work (Adriaanse et al., 2010; Oettingen et al., 2015) and online examples (woopmylife.org) produced by experts. Initially, participants restated their goal (see experiment-specific descriptions) and imagined the most positive outcomes they associated with attaining this goal. Next, they contrasted this positive image with the reality of their current situation (i.e., facing a challenging goal) and personal limitations, and in doing so identified the main obstacle that might prevent them from attaining their goal. Finally, participants formed an implementation intention (e.g., “if I get stuck on an item... then I will make a guess and see if it is correct by clicking the check answer button”) to help them initiate a plan of action to overcome this obstacle. Pilot data showed that participants ($N = 40$) found the MCII instructions clear ($M = 8.25$ [out of 10], $SD = 2.41$), and useful ($M = 8.28$ [out of 10], $SD = 2.01$). In Experiments 2 and 3, where the initial goal was unattainable, the MCII training differed as follows. When participants thought of an

obstacle to their goal attainment, they also considered whether this obstacle was something they could likely overcome or it would be more pertinent to consider alternative ways for achieving the goal. This modification was intended to provide a form of MCII that could encourage either persistence or disengagement, depending on the participant's perceived likelihood that they would achieve their goal.

In the control condition of Experiments 1 and 2, participants completed a word association task in which they described six objects (e.g., a forest and a camera) and then imagined and described experiences they have had with two of them. Next, they generated antonyms for three adjectives. In Experiment 3, the control exercise required them to trace several shapes by connecting dots. Both tasks were novel and intended as attentional controls that fit the cover story and took approximately as long as the MCII training. Participants learned that the control exercises were training tasks that would help them with their goals.

We considered it possible that participants' perceptions of goal difficulty and obstacles to its attainment would change with increased familiarity with the RAT. Therefore, we presented a shortened version of either the MCII or control task that participants had completed earlier 3 min into the RAT in Experiments 1 and 2. The results of Experiments 1 and 2, and feedback from piloting in Experiment 3, suggested that the addition of this extra training was unnecessary and some participants found it annoying; so, we removed it from Experiment 3.

2.6 | Automatic exclusion criteria

We took several steps to ensure that participants maintained their focus on the RAT task and did not cheat (e.g., by searching answers on the internet). First, we mentioned that the experiment required them to pay attention and data validity was dependent on their best effort. We warned them that the experimenters had multiple means for detecting cheating during the experiment and those caught cheating would be excluded from the experiment. We also stated that, if they opened a new tab/window on their browser, they would be excluded. During the tasks, we used background HTML to monitor the focus of participants' web browsers. If they changed windows or browser tabs, a change of focus was registered, the task was ended immediately, and the participant was disallowed from continuation.

Finally, we asked participants at the end of each experiment whether they used another device to search for answers, requested external help, or implicated any form of assistance. We informed them that answering this question honestly would not impact on their participation (i.e., they would still receive payment). We exclude their data, if they answered the questions in the affirmative.

3 | GENERAL MEASURES

We used the following measures in all experiments, unless otherwise indicated.¹

3.1 | Motivation for goal striving

Measures of motivation for goal striving captured participants' controlled and autonomous motivation for attaining their goal. We adapted items from Sheldon et al. (2017). Participants rated (1 = *not at all*, 7 = *very much so*) the extent to which they were pursuing their goal for extrinsic (e.g., "I feel like it is what I am supposed to do"), positive introjected (e.g., "I want others to think I'm competent"), negative introjected (e.g., "I would feel ashamed if I didn't do well at the task"), identified (e.g., "The goal will give me personally important information"), and intrinsic (e.g., "I find pursuing the goal interesting") reasons. We used two items for each motivational sub-construct, resulting in 10 items. Following the Self-Determination Theory literature (Ryan & Deci, 2017; Sheldon, 2014), for parsimony, we constructed an autonomous motives score by averaging the intrinsic and identified motivation items, and a controlled motives score by averaging the extrinsic and introjected items.

3.2 | Goal difficulty, goal efficacy, and goal importance

We measured goal difficulty, goal efficacy, and goal importance (1 = *not at all*, 7 = *very*) with three items each (Ntoumanis, Healy, Sedikides, Smith, et al., 2014). Sample items are: for goal difficulty, "How challenging is your goal?"; for goal efficacy, "how confident are you that you will achieve your goal?"; for goal importance, "how much do you value achieving your goal?".

4 | EXPERIMENT 1: GOAL PERSISTENCE WITH DIFFICULT BUT ATTAINABLE GOALS

Experiment 1 represents the first attempt to test the main and interactive effects of goal motives and experimentally manipulated MCII on goal persistence and progress when goals are attainable. Specifically, it offers conceptual innovation by testing whether MCII moderates the previously reported paths among goal motives, persistence, and goal progress (Ntoumanis, Healy, Sedikides, Duda, et al., 2014). Both primary (Healy et al., 2014; Ntoumanis, Healy, Sedikides, Duda, et al., 2014) and meta-analytic (Gaudreau et al., 2012; Koestner et al., 2008) evidence indicates that goal progress and attainment are more likely when goal motivation is mostly autonomous. Often, however, individuals engage in goal pursuit for controlled reasons; in those cases, MCII could be beneficial in strengthening commitment to goal pursuit (Ntoumanis & Sedikides, 2018; Oettingen & Gollwitzer, 2010; Oettingen et al., 2001). Mechanisms underpinning the association between goal motives and progress have been tied to appraisals, and in turn coping strategies (Bonneville-Roussy et al., 2017; Gaudreau et al., 2012; Ntoumanis et al., 2009; Smith et al., 2011). Autonomous

motives elicit persistence with a difficult goal by promoting positive task appraisals and effort-based coping strategies. Controlled motives, however, are related to threat task appraisals and "giving-up" coping strategies, and are unrelated to goal persistence (Ntoumanis, Healy, Sedikides, Duda, et al., 2014). Although it would be ideal to choose to pursue only autonomously motivated goals, it is often the case that individuals have goals driven by controlled motives—goals on which they need to persist (e.g., attending faculty meetings and doing chores).

The aim of our first experiment was to replicate findings pertaining to the relations among goal motives, persistence, goal attainment, and the mediating role of appraisals and coping strategies. Further, we tested the proposal set out by the Tripartite Model that MCII moderates the influence of goal motives in predicting progress (Ntoumanis & Sedikides, 2018).

We proposed the following hypotheses:

- H1. Autonomous goal motives positively predict goal progress via challenge appraisals, effort-based coping, and persistence.
- H2. Controlled goal motives positively predict threat appraisals and giving-up coping, which in turn negatively predicts progress.
- H3. Partaking in MCII (vs. a control condition) reduces the threat appraisals of participants with high controlled goal motives and culminates in better goal progress.

We present a graphic depiction of the hypothesized model in Supporting Information.

4.1 | Methods

4.1.1 | Participants

We conducted power analysis using Monte Carlo simulations, as outlined in the General Methods. We derived β coefficient estimates for the relations among goal motives, appraisals, coping strategies, and persistence from Ntoumanis, Healy, Sedikides, Duda, et al. (2014). We based β coefficient estimates for the effect of MCII and its interaction with controlled goal motives on meta-analytic data showing small to medium effect sizes for MCII interventions (Wang et al., 2021). We extracted variance parameter estimates by simulating data with the estimated β coefficients in R. The projected sample size required to detect the hypothesized effects in this model with 80% power at $\alpha = .05$ was $N = 260$.

We recruited 302 participants, predominantly from the United States (41%) and the United Kingdom (38%), paying them \$3.40 for the 30-min experiment. We removed 41 of them (see Section 2.6), leaving a final sample of 261 participants (121 women, 126 men, 14 nonbinary). Their mean age was 32.42 years ($SD = 12.73$). Also, 75.86% of them were completing or had completed an undergraduate level degree or higher. We randomly assigned participants to the MCII ($n = 126$) or control ($n = 135$) condition.

4.1.2 | Procedure

This experiment followed the General Procedure set out in the General Methods section. Participants completed five practice RAT items that gradually increased in difficulty. The practice items were intended to familiarize participants with the task and give them an individualized impression of task difficulty. In addition, we instructed participants that, if they were stuck on an item, they could try typing in an answer that partially fit the item and click the “check answer” button to find out if their guesses were correct. In doing so, we made available to them a reasonable strategy for engaging with the task if they got stuck, as well as encouraging them to demonstrate their persistent effort by continuing to make attempts at an item. Following practice, we used a 14-item RAT and designated participants with the goal of completing 10 items correctly. Next, they filled out the measures listed below.

4.2 | Experiment-specific measures

4.2.1 | Challenge/threat appraisals

Participants rated (1 = *not at all true*, 7 = *very true*) four statements related to threat appraisals (e.g., “I thought the task could have been threatening to me”), and four statements related to challenge appraisals (e.g., “I viewed the task as a positive challenge”) of the RAT. We adapted these items from research on academic goals (McGregor & Elliot, 2002).

4.2.2 | Coping strategies

Ntoumanis, Healy, Sedikides, Duda, et al. (2014) examined two coping strategies: effort coping and giving-up coping. They measured effort coping with three items (e.g., “I gave my best effort”) from the

English version of the Inventaire des Strategies de Coping en Competition Sportive (ISCCS; Gaudreau & Blondin, 2002) and one item from the Active Coping scale of the COPE (Carver et al., 1989). They measured giving-up coping with four items (e.g., “I let myself feel hopeless and discouraged”) from the Disengagement/Resignation scale of the ISCCS. Responses ranged from 1 (*not at all*) to 7 (*very much so*).

Giving-up coping is equivalent to disengagement coping, a term applied to the same coping style in other work (Ntoumanis, Healy, Sedikides, Duda, et al., 2014). We chose to use “giving-up coping” to avoid confusing this style of coping with the cognitive ease of disengagement from a goal, which is conceptually distinct and was measured in Experiments 2 and 3. Giving-up coping entails taking a defeatist outlook on one's goal, whereas cognitive disengagement entails the acceptance of a goal's unattainability and the start of preparations for alternative plans of action (Wrosch et al., 2003).

4.2.3 | Goal persistence and goal progress

We operationalized persistence in the task as the total number of attempts made across all RAT items (see Section 4.1.2). We measured goal-related progress as the number of correct items attained on the RAT.

4.3 | Results

As shown in Table 1, participants reported moderate levels of controlled goal motives, moderate to high levels of autonomous motives, challenge appraisals, and effort-based coping, as well as moderate to low levels of threat appraisals and giving-up coping. Cronbach's alphas were above .70 for all variables; all correlations were small or moderate.

TABLE 1 Descriptive statistics, internal reliabilities, and correlation coefficients for variables in Experiment 1

	M	SD	α	1	2	3	4	5	6	7	8
1. Autonomous Motives	5.10	1.22	.81	–							
2. Controlled Motives	4.67	1.19	.77	.50**	–						
3. Threat Appraisals	2.83	1.29	.81	.12	.47**	–					
4. Challenge Appraisals	5.11	1.28	.87	.42**	.21**	–.09	–				
5. Effort Based Coping	5.93	0.91	.84	.34**	.14*	–.04	.43**	–			
6. Giving-up Coping	3.02	1.35	.77	–.14*	.08	.41**	–.37*	–.26**	–		
7. Number of RAT Attempts (Persistence)	20.44	9.03	–	.03	.01	.10	.02	.15*	.04	–	
8. RAT Score (Goal Related Progress)	7.03	3.66	–	.01	.09	–.02	.23**	.23**	–.40**	.22**	–
9. Experimental Condition (0 = control; 1 = MCII)	–	–	–	–.06	.00	.04	–.08	.06	.10	.01	–.02

* $p < .05$; ** $p < .01$.

4.3.1 | Relations among MCII, goal motives, appraisals, coping, persistence, and task progress

We used path analysis, with robust maximum likelihood estimation in the LAVAAN package (Rosseel, 2012) in R (R Core Team, 2021), to test the main hypotheses. This model demonstrated acceptable fit ($\chi^2(37) = 57.83$, $p = .016$; RMSEA = .05, SRMR = .05, CFI = .95; Hu & Bentler, 1999; Marsh et al., 2004). All paths were significant ($p < .05$), except for those from MCII training condition to threat appraisals, from MCII training condition to challenge appraisals, and from the interaction between MCII training condition and autonomous motives to challenge appraisals (Figure 2). All β and p values for the model are available in Supporting Information.

Autonomous motives positively predicted challenge appraisals, which in turn predicted an increase in effort-based coping strategies and a decrease in giving-up coping. Effort-based coping strategies were positively related to task persistence, which was ultimately associated with increased goal progress. This result is consistent with H1. Controlled goal motives, on the other hand, predicted higher threat appraisals. This, in turn, predicted increased giving-up coping, which had a negative association with goal progress, consistent with H2. As per H3, MCII training interacted with controlled goal motives to reduce threat appraisals. High controlled goal motives were associated with lower threat appraisals in the MCII training condition than in the control condition. A pairwise comparison of slopes showed that the slope for controlled motivation predicting threat appraisals ($\beta = .58$) was significantly steeper in the control training condition than in the MCII training condition ($\beta = .34$, p for the contrast test = .034). We depict the interaction in Supporting Information. All model paths remained significant when controlling for goal striving tenacity, perceived goal difficulty, goal efficacy, goal importance, and personality traits.

We obtained a significant positive indirect effect on goal-related progress from autonomous motives via challenge appraisals, effort-based coping, and persistence ($\beta = .01$, $p = .042$). The indirect effect on goal-related progress from the interaction between MCII and controlled motives via threat appraisals and giving-up coping was also significant and positive ($\beta = .02$, $p = .029$). MCII alone had no indirect effect on goal-related progress via threat appraisals and giving-up coping ($\beta = -.01$, $p = .458$), nor via challenge appraisals, effort based coping, and persistence ($\beta < .01$, $p = .360$). Finally, the indirect effect on goal progress from controlled motives via threat appraisals and giving-up coping was significant and negative ($\beta = -.07$, $p < .001$).

4.4 | Discussion

The results of Experiment 1 underscore the importance of autonomous motivation in nurturing adaptive cognitive appraisals and coping mechanisms, which facilitate goal persistence and goal attainment. In contrast, controlled goal motives undermine the striving of difficult goals resulting in threat appraisals and giving-up coping. These results align with tenets of the Self-Concordance Model (Sheldon & Elliot, 1999). Furthermore, they replicate and extend previous work, which also addressed the mediating role of appraisals and coping strategies but did not disentangle persistence from progress (Ntoumanis, Healy, Sedikides, Duda, et al., 2014). We showed that effort-based coping strategies produce measurable increases in persistence on a difficult task, which in turn culminates in better progress with goal-relevant outcomes.

This experiment also demonstrated that MCII training (vs. control) can interact with controlled goal motives to ameliorate the negative impact of controlled motivation on goal striving via reduction of threat appraisals. These results align with Gollwitzer and Schaal's (1998) finding

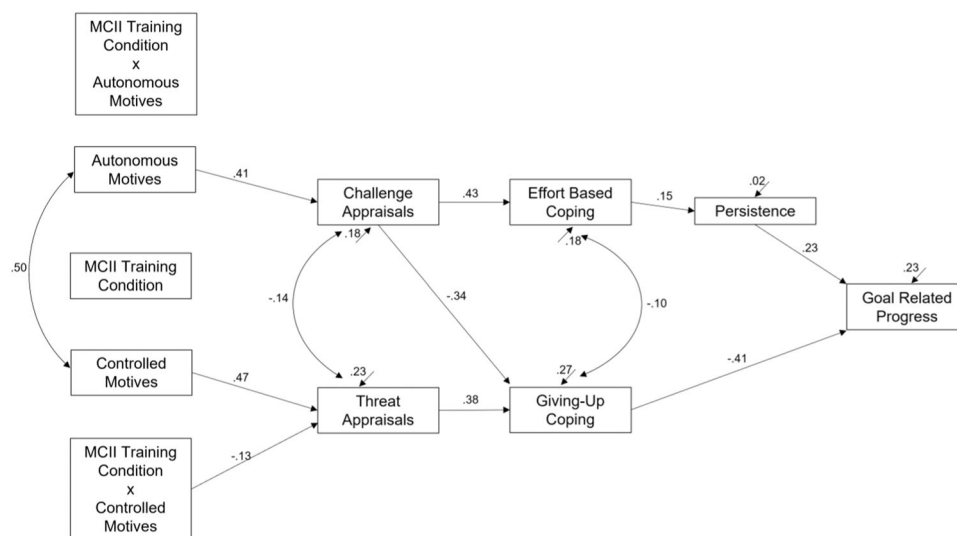


FIGURE 2 Experiment 1 SEM model showing relations among MCII, goal motives, appraisals, coping strategies, persistence, and goal related progress. Note: Only significant paths are depicted ($p < .05$). The nonsignificant paths have been removed for presentation clarity and are presented in Supporting Information. Arrows pointing to dependent variables indicate R^2 estimates of effect size.

that implementation intentions are beneficial for individuals who find tasks unattractive and support a key assumption of the Tripartite Model (Ntoumanis & Sedikides, 2018). Furthermore, the present results shed light on why MCII may be particularly effective when motivation is controlled: MCII may be an effective strategy for influencing the way individuals with controlled motives perceive their goals (i.e., by reducing threat appraisals). Given that many life goals are pursued with controlled motives (e.g., completing house chores, attending faculty meetings), training individuals in MCII could help them to persist with unattractive but necessary goals with greater effectiveness.

5 | EXPERIMENT 2: GOAL DISENGAGEMENT AND REENGAGEMENT

5.1 | When faced with unattainable goals

Although persistence with an attainable goal is related to goal progress, persistence with an unattainable goal will ultimately engender frustration and failure (Wrosch & Scheier, 2020). Consequently, when faced with an unattainable goal, disengagement followed by reengagement, rather than persistence, may be the most adaptive approach and is protective for well-being (Barlow et al., 2020). In Experiment 2, we address the other half of strategic goal pursuit (i.e., disengagement followed by reengagement) by shifting our focus onto self-regulatory responses to unattainable goals (bottom two-thirds of Figure 1).

Previous work has examined how autonomous and controlled goal motives predict the cognitive ease of disengagement and reengagement when pursuing an unattainable goal (Ntoumanis, Healy, Sedikides, Smith, et al., 2014; Smith & Ntoumanis, 2014). Autonomous motivation emerged as a negative predictor of disengagement ease. Ntoumanis, Healy, Sedikides, Smith, et al. (2014) further showed that this negative path was partly due to rumination and resulted in distress and futile persistence. However, when participants realized goal unattainability halfway through the trial, they were less likely to persist futilely, and were more likely to disengage (cognitively and behaviorally) and reengage in a new goal that served the same higher-order goal. Similarly, other studies have linked the self-regulation processes of disengagement and reengagement to well-being outcomes, such as increased positive affect and physical health (Barlow et al., 2020; Wrosch et al., 2013). MCII is particularly promising as a technique for encouraging adaptive disengagement, due to its capacity to modulate commitment based on goal attainability (Kappes et al., 2012; Legrand et al., 2017).

In Experiment 2, we tested the prediction that training individuals in MCII will facilitate timely disengagement from an unattainable goal and reengagement with an alternative pursuit by moderating the influence of autonomous motivation (Ntoumanis & Sedikides, 2018). Furthermore, we investigated the assumption that appropriate disengagement and reengagement will lead to improved well-being (Wrosch & Scheier, 2020). Finally, we examined the mediating roles of the cognitive ease of disengagement and cognitive

ease of reengagement. Attempting to replicate and extend past literature, we hypothesized that:

- H1. Autonomous goal motives negatively predict the cognitive ease of disengagement from an initial unattainable goal, and positively predict the cognitive ease of reengagement with a new goal that serves the same higher-order goal.
- H2. MCII is positively related to ease of reengagement with the alternative goal.
- H3. MCII interacts with autonomous goal motives, such that participants with high autonomous motives who undertake MCII find it easier to disengage cognitively from the initial goal than those in a control (non-MCII) condition.
- H4. Cognitive ease of reengagement and disengagement is associated with two behavioral indicators: less time persisting on the initial goal, and choosing to reengage behaviorally with the alternative goal as opposed to persist with the unattainable goal.
- H5. Strategic goal pursuit (choosing to reengage vs. futile persistence) is positively related to positive affect and negatively related to negative affect (from pre- to posttrial), due to timely goal disengagement/reengagement.
- H6. Ease of disengagement and reengagement positively predicts goal progress in the alternative task for those who choose to reengage.

We report the full hypothesized model in Supporting Information.

5.2 | Methods

5.2.1 | Participants

Similarly to Experiment 1, we derived β coefficient estimates for the power analysis from primary (Ntoumanis, Healy, Sedikides, Smith, et al., 2014) and meta-analytic (Wang et al., 2021) research. We extracted variance parameter estimates by simulating data with the estimated β coefficients. The projected sample size required to detect the hypothesized effect with 80% power and $\alpha = .05$ in this model was $N = 350$.

We recruited 420 participants, predominantly from the United Kingdom (63%) and the United States (31%), remunerating them with \$5.46 for the 48-min experiment. We removed 21 of them from analyses (see Section 2.6), leaving a final sample of 391 participants (230 women, 149 men, 12 nonbinary). Their mean age was 37.58 years ($SD = 13.02$), and 74.42% of them were completing or had completed an undergraduate level degree or higher. We randomly allocated participants to the MCII ($n = 189$) or control ($n = 202$) condition.

5.2.2 | Procedure

We gave participants the overarching goal of demonstrating high creative potential. We mentioned that this goal could be achieved by obtaining

either at least 15 correct answers in a 20-item RAT or at least 10 correct answers in an alternative task to which they could choose to switch at any point during the initial task. We instructed them how to complete the RAT but did not tell them what the alternative task would be, only that it would be of a similar difficulty and was a different way of demonstrating “creative potential.” We did so to ensure that participants did not preemptively decide on a task that they thought might be better suited to their skills before trying the initial task. We allowed them 20 min to pursue their overarching goal; if they chose to change to the alternative task, they had available whatever time remained from the 20 min. To incentivize further the overarching goal, we informed participants that, if they demonstrated high creative potential by achieving the target in either task, they would be eligible to take part in well-paid studies in the future.

We used the impossible version of the RAT, in which 6 of the 20 items had no solution, thus making the goal of attaining 15 correct answers unattainable. During the RAT, buttons for “Change Task” and “End Experiment” were displayed. Clicking the “End Experiment” (i.e., disengagement without reengagement) button redirected participants to the experiment-specific measures. Clicking the “Change Task” (i.e., disengagement with reengagement) button redirected them to instructions for the alternative task (Raven's Progressive Matrices). Participants could also choose to ignore either button and persist with the RAT (i.e., futile persistence). After 20 min elapsed, participants who had not chosen the “End Experiment” button were re-directed to the experiment-specific measures.

5.3 | Experiment-specific measures

5.3.1 | Affect

We measured affect as an indicator of psychological wellbeing following the completion of the demographic questionnaire at the beginning of the experiment and again after finishing the RAT/Raven's Progressive Matrices tasks. We used items adapted from the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). Participants rated (1 = *very slightly or not at all*, 5 = *extremely*) adjectives that described various positive (*Excited, Upset, Enthusiastic, Proud, Alert, Inspired, Attentive, Active*) and negative (*Distressed, Upset, Hostile, Irritable, Ashamed, Nervous*) affective states. We formed separate positive and negative affect scores by averaging ratings across positive and negative affect adjectives, respectively. We calculated changes in affect by subtracting positive and negative affect scores at the beginning of the experiment from those obtained after participants had completed the task.

5.3.2 | Cognitive ease of goal disengagement and reengagement

We assessed the ease with which participants were able to accept mentally the unattainability of the goal in the RAT and make

preparations to move on. We did so by asking them to rate the extent to which they agreed (1 = *strongly disagree*, 5 = *strongly agree*) with four statements regarding the cognitive ease of goal disengagement (e.g., “it was easy for me to stop thinking about the goal and let it go”). We also assessed the ease with which they engaged with cognitions associated with resuming striving for the goal in the alternative task using four statements regarding goal reengagement (e.g., “I convinced myself that there were other meaningful ways to pursue the goal”). We adapted these items from the Goal Disengagement and Goal Reengagement Scale (Wrosch et al., 2003).

5.3.3 | Time spent on the RAT

We operationalized persistence with the impossible RAT as the amount of time that participants spent on the task before clicking either the change task or end experiment button.

5.3.4 | Strategic goal pursuit

We defined disengagement with reengagement as one category of a binary outcome (strategic goal pursuit), whereas we combined disengagement without reengagement and futile pursuit to form the alternative category.

5.3.5 | Goal progress in alternative task

We measured goal-related progress as the number of correct items attained on the alternative task. We only measured goal-related progress for participants who strove for the goal strategically by switching to the alternative task.

5.4 | Results

As shown in Table 2, participants reported moderate levels of controlled goal motives, moderate to high levels of autonomous motives and cognitive ease of reengagement, and moderate levels of affect and cognitive ease of disengagement. Cronbach's alphas were above .70 for all variables; correlations were small or moderate.

5.4.1 | Testing the hypothesized model

We tested our main hypotheses via path analysis. This initial model produced a borderline fit ($\chi^2(32) = 83.05$, $p < .001$; RMSEA = .07, SRMR = .06, CFI = .91; Hu & Bentler, 1999; Marsh et al., 2004). Based on modification indices, we also allowed for controlled goal motives to predict directly negative affect. The addition of this path is theoretically plausible, given that controlled motivation can

TABLE 2 Descriptive statistics, internal reliabilities, and correlation coefficients for variables in Experiment 2

	<i>M</i>	<i>SD</i>	<i>A</i>	1	2	3	4	5	6	7	9
1. Autonomous Motives	5.01	1.21	.80	-							
2. Controlled Motives	4.64	1.22	.78	.47**	-						
3. Time Spent on Task 1 (s)	490.16	399.18	-	.10	.07	-					
4. Ease of Goal Disengagement	2.53	.99	.78	-.17**	-.18**	-.51**	-				
5. Ease of Goal Reengagement	3.56	1.01	.89	.17**	.05	-.31**	.20**	-			
6. Negative Affect Change	2.28	.95	.88	.14**	.29**	.07	-.24**	.12	-		
7. Positive Affect Change	2.33	.80	.87	.31*	.09	-.11*	-.09	.05	-.08	-	
8. Experimental Condition (0 = control, 1 = MCII)	-	-	-	.01	.02	-.05	.09	.17**	.07	.09	-
9. Strategic Goal Pursuit (0 = persistence or disengagement, 1 = reengagement)	-	-	-	-.10	-.06	-.65**	.29**	.19**	.01	-.06	.02

* $p < .05$; ** $p < .01$.

contribute to negative psychological well-being (Sanjuan & Avila, 2019; Smith et al., 2007), and this improved the model fit ($\chi^2(31) = 54.24$, $p = .006$; RMSEA = .05, SRMR = .05, CFI = .96). A likelihood ratio test confirmed that this addition made a significant improvement to the model's fit ($\chi^2_{diff}(1) = 33.62$, $p < .001$). We depict this final model in Figure 3. We report β and p values for this model in Supporting Information.

H1 and H2 were partially supported. Although MCII ($\beta = .09$, $p = .069$) and autonomous goal motives ($\beta = -.12$, $p = .064$) did not significantly predict participants' ease of disengagement, MCII and autonomous goal motives positively predicted the ease with which participants were able to reengage cognitively with the goal in the alternative task. Unexpectedly, controlled motives negatively predicted the ease with which participants were able to disengage cognitively from the goal in the initial task, but did not predict the ease with which they were cognitively able to reengage with the alternative task. H3 was unsupported, as the interactions between autonomous goal motives and MCII training condition as well as between controlled goal motives and MCII did not significantly predict either the ease of cognitive disengagement or the ease of cognitive reengagement. Both the ease of cognitive disengagement and the ease of cognitive reengagement were negative predictors of the time spent on the initial task. Participants who found it easy to reengage cognitively with their goal were more likely to make the strategic behavioral choice of reengaging during their goal pursuit, whereas those who persisted longer with the initial task were less likely to make this strategic choice. Strategic goal striving was positively related to changes in positive affect, but did not relate to changes in negative affect. These results support H4 and H5. Finally, we tested a model that included goal striving flexibility, goal striving tenacity, goal importance, goal efficacy, goal difficulty, and personality as control variables. The model did not attain an acceptable fit ($\chi^2(79) = 404.68$, $p < .001$; RMSEA = .11, SRMR = .10, CFI = .64).

5.4.2 | Ease of disengagement and reengagement predicting subsequent goal related progress

In testing H6, we used regression analysis to assess whether the ease of cognitive disengagement and reengagement influenced goal related progress in the subset of participants who engaged in strategic goal striving ($n = 308$). Ease of cognitive disengagement from the goal in the first task predicted goal related progress in the alternative task ($\beta = .33$, $p < .001$), whereas ease of cognitive reengagement did not ($\beta = .06$, $p = .224$; Figure 3).

5.5 | Discussion

In Experiment 2, we tested how motives and MCII influence goal striving and adjustment when faced with an unattainable goal. The results were consistent with only some of our hypotheses. With regard to the cognitive ease of goal disengagement, our results differed somewhat from those reported by Ntoumanis, Healy, Sedikides, Smith, et al. (2014). These authors found that autonomous (but not controlled) goal motives negatively predicted goal disengagement; however, we showed that controlled (but not autonomous) motives were negatively related to the ease of goal disengagement. With regard to controlled goal motives, our finding can be explained by the possibility that, when self-worth is "on the line," individuals might find it harder to disengage cognitively from goal pursuit. The nonsignificant results pertaining to autonomous goal motives and ease of disengagement are harder to explain, given that previous findings (Mulvihill et al., 2018; Ntoumanis, Healy, Sedikides, Smith, et al., 2014; Smith & Ntoumanis, 2014) showed a moderate-sized negative relation between these two variables. The difference might lie in the nature of the goals pursued in those studies, which were closer to real-life goals (and hence personally relatable) than the artificial goals our participants pursued in the online task.

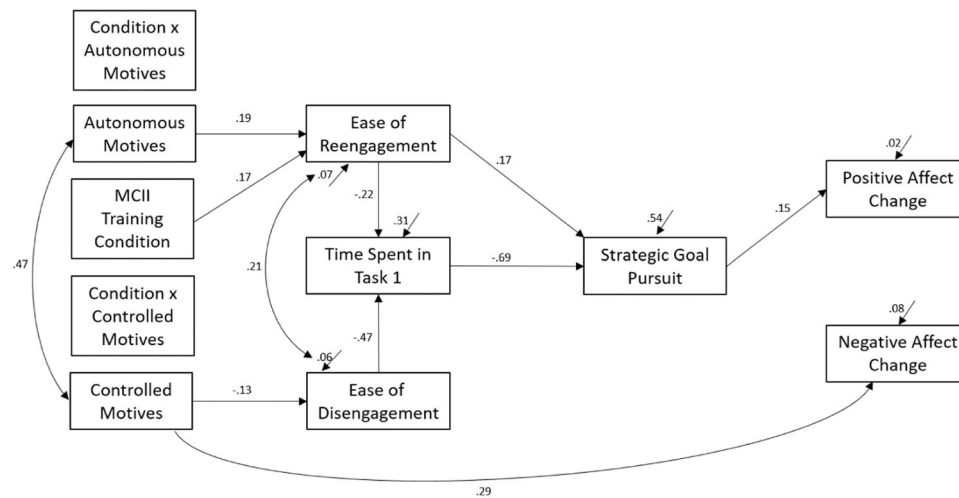


FIGURE 3 Model for Experiment 2 showing relations among goal motives, MCII, ease of reengagement and ease of disengagement, strategic goal choice and pursuit, and changes in affect. *Note:* Solid lines represent statistically significant paths ($p < .05$). Nonsignificant paths have been omitted for presentation clarity. Arrows pointing to dependent variables indicate R^2 estimates of effect size.

Results pertaining to mediators of goal disengagement and reengagement were largely in line with our expectations and previous literature (Ntoumanis, Healy, Sedikides, Smith, et al., 2014; Wrosch et al., 2003). Autonomous (but not controlled) goal motives were positively related to ease of cognitive goal reengagement, which in turn predicted less time spent on unattainable goal pursuit as well as the behavioral choice of reengaging in alternative goal pursuit. Ease of disengagement also predicted less persistence with the unattainable goal. Unlike the cognitive ease of reengagement, ease of disengagement did not predict behavioral reengagement, as individuals might still ruminate about unaccomplished goals even when they behaviorally reengage (Ntoumanis, Healy, Sedikides, Smith, et al., 2014). Nevertheless, among those who reengaged, ease of disengagement, rather than ease of reengagement, predicted goal progress in the follow-up task. These results are consistent with the idea that the capacity to find a different way (or different goals) for pursuing a higher order goal can act as a buffer against the negative impact of unattainable goals (Carver & Scheier, 2017). Followingly, disengaging from an unattainable goal and reengaging with an attainable alternative was related to increased positive affect, a result in accord with goal disengagement/reengagement literature (Barlow et al., 2020; Brandstätter & Bernecker, 2022; Wrosch & Scheier, 2020). Finally, the results are consistent with the idea that disengaging from a goal is a substantively different from failing to attain a goal (Wrosch et al., 2003). Disengagement in the current experiment facilitated performance in the alternative task; having an unfulfilled or failed goal, on the other hand, inhibits performance in follow-up tasks (Masicampo & Baumeister, 2011).

Ntoumanis and Sedikides (2018) proposed that MCII should be effective for helping individuals to manage their striving efforts by discouraging unattainable goal pursuit and encouraging reengagement with an attainable alternative; however, MCII has predominantly been

used in the literature to encourage persistence with attainable goals. The current experiment is the first to illustrate that MCII can help individuals to make adaptive decisions during the striving process, which leads to efficacious goal striving, an increased likelihood of goal attainment, and improved well-being. We did not find evidence that MCII moderates the influence of autonomous motives on ease of reengagement or ease of disengagement. This contrasts with predictions of the Tripartite Model (Ntoumanis & Sedikides, 2018). The statistically inconsequential effects could be explained by the type of implementation intentions participants set. Henderson et al. (2007) reported that, when implementation intentions encouraged participants to reflect on their current situation, disengagement only occurred when the implementation intention was preceded by negative progress feedback but did not occur in the presence of positive feedback. This pattern differs for implementation intentions that call for direct action, which are likely to trigger disengagement based on environmental cues alone and are not influenced by preceding feedback. Visual inspection of our data indicates that some participants set reflective implementation intentions. These may not have facilitated disengagement, especially if a participant exerted effort and experienced initial success on the unattainable task, which is more likely to occur for autonomously motivated individuals (Current Experiment 1; Healy et al., 2014). Researchers would do well to address whether more directive implementation intentions would be useful in encouraging disengagement when autonomous motives are present.

6 | EXPERIMENT 3: GOAL DISENGAGEMENT AND REENGAGEMENT

6.1 | When pursuing multiple difficult goals

The previous two experiments examined predictors of the self-regulatory processes of goal persistence, disengagement, and reengagement when

striving for a difficult but attainable goal (Experiment 1) or an unattainable goal (Experiment 2). However, rarely does an individual strive for a single goal in isolation: instead, there are usually other goals that compete simultaneously for one's time and effort. Although it is possible to attain multiple goals in parallel (Kung & Scholer, 2020), the restricted availability of resources requires that, at times, individuals must make strategic decisions to manage demands and maximize the likelihood of attaining at least one of their goals. In Experiment 3, we tested how motives and MCII influence self-regulatory responses when individuals strive for multiple competing goals.

Strategically deciding when to persist, disengage, and reengage with pursuit is necessary for the effective management of multiple conflicting goals (Kung & Scholer, 2020; Moshontz et al., 2019). This experiment simulates how the separate self-regulation processes of persistence (Experiment 1) and disengagement/reengagement (Experiment 2) can function in concert to enable the management of multiple goals. We designed Experiment 3 such that persisting with multiple goal pursuit would be unlikely to result in attainment of either goal, whereas directing effort into a single goal would increase the likelihood of its attainment. Although individuals can attain multiple goals pursued simultaneously when conflicts are minimal (Kung & Scholer, 2020; Orehek & Vazeou-Nieuwenhuis, 2013), when conflicts arise it may be necessary to prioritize one goal over another by disengaging from the non-prioritized goal (Moshontz et al., 2019). Experiment 3 fills a conceptual gap in the literature by addressing how goal motives influence the interplay among persistence, disengagement, and reengagement when striving for multiple incompatible goals. Additionally, it provides a further test of the Tripartite Model by investigating whether training individuals in MCII encourage the optimal use of these self-regulatory processes, when managing multiple goals, through the moderation of goal motives.

We hypothesized that:

- H1.** Replicating Experiment 1 findings, goal motives and MCII will predict coping strategies via appraisals: autonomous motives will positively predict challenge appraisals, which in turn will predict effort coping, whereas controlled motives will positively predict threat appraisals and giving-up coping but will be moderated by MCII.
- H2.** Replicating Experiment 2 findings, autonomous motives and MCII will positively predict the cognitive ease of reengagement with single goal pursuit. The cognitive ease of disengagement and reengagement will positively predict whether participants choose to pursue their goal in a strategic manner (i.e., by switching from multiple goal pursuit to single goal pursuit).
- H3.** Effort coping and the strategic selection of single goal pursuit interact, such that individuals who invest effort coping into single goal pursuit demonstrate better goal progress than those who invest effort coping into multiple goals.

We present the full hypothesized model in Supporting Information.

6.2 | Methods

6.2.1 | Participants

We derived β coefficient estimates for the power analysis from the results of Experiments 1 and 2, with variance parameters estimated via simulation. The projected sample size required to detect all hypothesized effects with 80% power and $\alpha = .05$, except for the interactions between autonomous motivation and MCII, was $N = 430$. Given that in Experiment 2, interactions between MCII and autonomous goal motives did not predict ease of disengagement or reengagement, the predicted β coefficients were small ($-.05$ and $.02$ respectively) and the power to detect these effects was $<20\%$. To detect significant interactions with these coefficients would have required an unfeasibly large sample ($N > 5000$). A second power analysis mirroring the procedure of Experiments 1 and 2 (i.e., using coefficients derived from Ntoumanis, Healy, Sedikides, Duda, et al., 2014; Ntoumanis, Healy, Sedikides, Smith, et al., 2014; Wang et al., 2021) indicated that a sample size of 430 participants would provide at minimum 87% power for all hypothesized effects, including the interactions. Hence, we expected that an $N = 430$ would entail adequate statistical power to detect meaningful effects. We excluded interactions between goal motives and MCII that were not hypothesized in the Tripartite Model of Goal Striving and were also found to be nonsignificant in Experiments 1 and 2 (i.e., MCII \times Controlled Motives predicting ease of disengagement/reengagement, MCII \times Autonomous Motives predicting challenge appraisals) to increase parsimony and power of the overall model.

We recruited 469 participants, predominantly from the United Kingdom (62%) and the United States (24%), paying them \$2.69 for the 25-min experiment. We removed 37 of them (see Section 2.6), which left a final sample of 432 participants (220 women, 201 men, 11 nonbinary). Their mean age was 38.95 years ($SD = 12.84$), and 75.46% of them were completing or had completed an undergraduate level degree or higher. We randomly assigned them to the MCII ($n = 216$) or control ($n = 216$) condition.

6.2.2 | Procedure

We informed participants that they would complete two tasks concurrently and provided them with relevant instructions. Each task had a separate goal. At any point during the trial, they could switch to pursuing a single goal rather than trying to attain both goals. They were told that if they achieved both goals, they would be eligible to take part in multiple well-paid studies, whereas if they achieved only one goal they would be eligible to take part in a single well-paid study. If they achieved neither of the goals within the given time limit, or achieved only one goal but did not indicate that they wanted to switch to single goal striving by clicking the appropriate button, they would be ineligible for future studies. The rationale behind this incentive structure was to encourage participants to make an initial attempt to strive for both goals rather than instantly focusing on the

single goal option. Disengagement can only occur if participants have at least some degree of commitment to attempting the initial goal.

The two tasks comprised a difficult selection of 20 RAT items and a difficult selection of 20 Ravens Progressive Matrices items. The goal in each task was to correctly answer 10 items. The tasks were difficult in that it was virtually impossible to attain both goals within the 7-min time limit, whereas striving for only one of the goals was difficult but attainable. Task difficulty was confirmed by the fact that no participants achieved both goals simultaneously, whereas approximately 22% of those who strived for a single goal attained it.

Initially, participants viewed a screen that featured the time remaining at the top and two bars indicating their actual progress (i.e., their current score as a percentage of the total score required to achieve both goals) as well as their expected progress. The expected progress bar increased at the rate at which participants would need to maintain if they were to attain the goals. If the actual progress bar was kept in front of the expected progress bar, participants would attain both goals within the set time limit. For those who switched to single goal pursuit, the progress bar was adjusted to match the rate required to attain a single goal. Below the progress bars, participants saw the RAT and Raven's Progressive Matrix tasks. Accompanying each task was a "focus on this goal only" button that removed the other task and enabled them to concentrate on the nominated goal. Following the RAT/Raven's Progressive Matrices tasks, participants completed the experiment-specific measures.

6.3 | Experiment-specific measures

We used measures of coping strategies and task appraisals (Experiment 1), as well as ease of cognitive disengagement/

reengagement (Experiment 2). We also collected the following measures.

6.3.1 | Strategic goal pursuit

Behavioral outcomes fell into two categories. We classified the behavioral choice to persist with both goals for the entire experiment (i.e., futile persistence) as nonstrategic pursuit, because the task was designed to make multiple goal striving nearly impossible. We classified the decision to stop trying to achieve both goals and switch to single goal pursuit (i.e., behavioral disengagement followed by reengagement) as strategic pursuit, because it was the option most likely to result in some form of goal attainment.

6.3.2 | Goal progress

We measured goal-related progress as the average number of correct items across the two tasks if participants persisted with multiple goal pursuit, and the total number of correct items attained in their selected task if participants engaged in single goal pursuit.

6.4 | Results

As shown in Table 3, participants reported moderate levels of challenge appraisals, autonomous and controlled goal motives, moderate to high levels of effort coping and cognitive ease of disengagement, moderate levels of threat appraisals and giving-up coping, and moderate to low levels of ease of reengagement.

TABLE 3 Descriptive statistics, internal reliabilities, and correlation coefficients for variables in Experiment 3

	M	SD	A	1	2	3	4	5	6	7	8	9	10
1. Autonomous Motives	4.60	1.25	.80	-									
2. Controlled Motives	4.50	1.17	.75	.51**	-								
3. Challenge Appraisals	4.50	1.53	.87	.37**	.27**	-							
4. Threat Appraisals	3.33	1.57	.82	.30**	.30**	-.27**	-						
5. Ease of Goal Reengagement	2.78	1.16	.83	.10*	.05	.05	.12*	-					
6. Ease of Goal Disengagement	2.69	1.14	.93	-.16**	-.22**	-.15**	-.06	.41**	-				
7. Effort Coping	5.47	1.41	.83	.03	.13**	.59**	.44**	-.7	-.11*	-			
8. Giving-up Coping	4.06	1.71	.83	-.08	-.05*	-.55**	.54**	<.01	-.04	-.47**	-		
9. Experimental Condition (0 = control, 1 = MCII)	-	-	-	<.01	<.01	.04	.05	.14**	.09	-.03	-.03	-	
10. Strategic Goal Pursuit (0 = futile persistence, 1 = switch to solo pursuit)	-	-	-	-.02	-.01	-.06	.02	.41**	.52**	-.08	-.01	.05	-
11. Goal Progress	5.53	3.07	-	-.03	.05	.03	-.08	.17**	.24**	.02	-.22**	.02	.36**

* $p < .05$; ** $p < .01$.

Cronbach's alphas were above .70 for all variables; correlations were small or moderate.

6.4.1 | Effort coping, adjustment, and progress

As before, we used path analysis to test our hypotheses. This initial model produced a borderline fit ($\chi^2(61) = 167.10, p < .001$; RMSEA = .07, SRMR = .06, CFI = .90; Hu & Bentler, 1999; Marsh et al., 2004). Based on modification indices, we allowed for the conceptually plausible path coefficient from threat appraisals to predict effort coping. Both current Experiment 1 and Ntoumanis, Healy, Sedikides, Duda, et al. (2014) demonstrated that challenge appraisals negatively predict giving-up coping. It is therefore plausible that a similar relation exists between threat appraisals and effort coping. The addition of this path improved the model fit to an acceptable level ($\chi^2(60) = 116.43, p < .001$; RMSEA = .05, SRMR = .05, CFI = .95). A likelihood ratio test confirmed that this addition made a significant improvement to the fit of the model ($\chi^2_{diff}(1) = 61.12, p < .001$). We depict this final model in Figure 4.

We first consider the top half of the model, which refers to how motives, MCII, appraisals, and coping strategies predict goal progress. Autonomous motives positively predicted challenge appraisals, whereas controlled motives predicted higher threat appraisals. There were no significant relations between MCII training condition and either threat or challenge appraisals. Similarly, the interaction between MCII training condition and controlled motives did not significantly predict threat appraisals. Challenge appraisals positively predicted effort coping and negatively predicted giving-up coping, whereas threat appraisals positively predicted giving-up coping and negatively predicted effort coping. Giving-up coping negatively predicted progress. However, there was no main effect of effort coping on progress. The absence of an effect of effort coping is explainable by the significance of an interaction between effort coping and strategic goal pursuit, which we detail below. These results partially support H1, although we note the lack of an interaction between MCII and controlled motives.

We now turn to the bottom half of the model, which refers to factors influencing strategic goal pursuit and how strategic pursuit also influences progress. Controlled goal motives negatively predicted the ease of disengagement from multiple goal pursuit, whereas MCII training condition positively predicted the ease of reengagement with single goal pursuit. The path from autonomous motives to ease of reengagement with single goal pursuit was not significant. Controlled goal motives did not significantly predict the ease of single goal reengagement, and the interaction between MCII training condition and autonomous motives did not predict the ease of either disengagement or reengagement. Both the ease of disengagement from multiple goal pursuit and the ease of reengagement with single goal pursuit predicted strategic pursuit of the goal (i.e., switching from multiple to single goal pursuit during the trial), which in turn was associated with greater goal-related progress. These results support H2.

A key aspect of this model is the interaction between effort coping and strategic goal pursuit, which significantly predicted progress. In line with H3, individuals who pursued the goal strategically and reported high effort-based coping exhibited better goal progress, whereas those who reported high effort-based coping while persisting futilely with multiple goal pursuit did not improve their progress. This interaction was confirmed by a simple slopes analysis, which yielded a significant difference between the slopes for participants who persisted with multiple goal pursuit ($\beta = -.08$) and those who switched to single pursuit ($\beta = .18$; p for the contrast test = .004). We depict the interaction in Supporting Information.

The indirect effect of autonomous goal motives on progress via challenge appraisals and the interaction between effort coping and strategic goal pursuit was significant ($\beta = .02, p = .026$), but was not significant when the interaction with strategic pursuit was excluded ($\beta = .002, p = .797$). Controlled goal motives had a significant negative indirect effect on progress via threat appraisals and giving-up coping ($\beta = -0.03, p < .001$), as well as via ease of disengagement from multiple goal striving and strategic goal pursuit ($\beta = -.03, p = .006$). The indirect effect of MCII training on goal progress via ease of reengagement and strategic pursuit was also significant ($\beta = .01$,

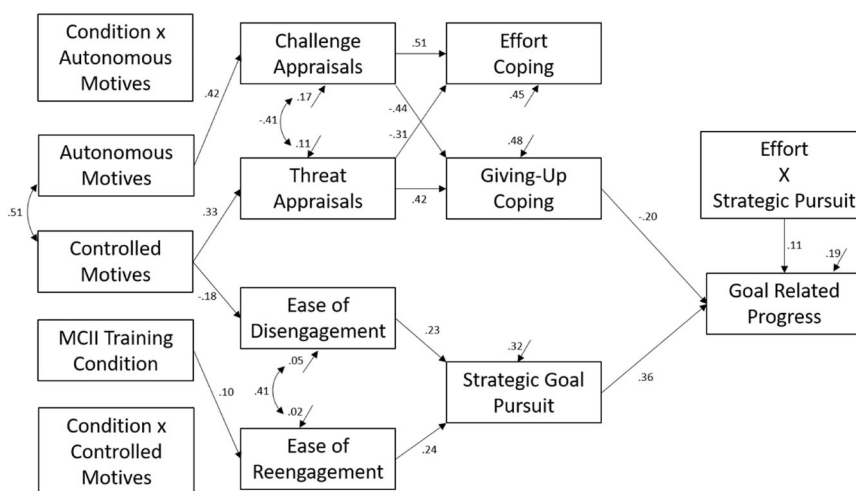


FIGURE 4 Model for Experiment 3 showing relations among goal motives, MCII, ease of reengagement, strategic goal choice, and goal progress. Note: Solid lines represent statistically significant paths ($p < .05$). Nonsignificant paths have been excluded for presentation clarity but are reported in Supporting Information. Arrows pointing to dependent variables indicate R^2 estimates of effect size.

$p = .039$). The addition of goal flexibility/tenacity, goal importance/efficacy/difficulty and personality variables to the model as controls reduced the overall model fit ($\chi^2(108) = 537.10$, $p < .001$; RMSEA = .10, SRMR = .09, CFI = .72), but did not otherwise affect the significance of any model paths.

6.4.2 | The role of autonomous goal motives in predicting ease of disengagement and reengagement in strategic goal strivers

The relation between autonomous goal motives and ease of reengagement warrants further attention given that a significant relation was demonstrated in Experiment 2. The proportion of participants who pursued the goal non-strategically in the current experiment was considerably greater than in Experiment 2 (79% pursued the goal strategically in Experiment 2, compared to 44% in Experiment 3). Participants who pursued the goal non-strategically by persisting with multiple goal pursuit evinced lower ease of reengagement scores in the current experiment ($M = 2.35$, $SD = 1.05$) than those who switched to single goal pursuit ($M = 3.32$, $SD = 1.07$; $t(399.96) = -9.38$, $p < .001$, $d = .92$), which may have obfuscated the effects of autonomous goal motives on ease of reengagement. Hence, we opted to carry out exploratory analysis.

To address whether autonomous goal motives promoted strategic goal striving by facilitating cognitive reengagement with an adjusted goal, we tested via regression analysis if autonomous goal motives predicted ease of reengagement in the subset of participants who switched to single goal pursuit ($n = 189$). Both autonomous goal motives ($\beta = .22$, $p = .002$) and MCII ($\beta = .13$, $p = .044$) predicted ease of reengagement. Controlled goal motives ($\beta = .08$, $p = .266$) and the interaction between MCII and autonomous motives ($\beta = .01$, $p = .935$) were not significant predictors.

6.5 | Discussion

By examining self-regulatory responses during multiple goal striving, Experiment 3 makes several unique contributions. It combines aspects of Experiment 1 (which focused on persistence with attainable goals) and Experiment 2 (which addressed disengagement from unattainable goals and reengagement). We showed that both MCII and autonomous motives play a key role when deciding whether to persist futilely with multiple goals, or to disengage from multiple goal pursuit and reengage by prioritizing effort towards a single attainable goal.

As in Ntoumanis, Healy, Sedikides, Duda, et al. (2014) and current Experiment 1, autonomously motivated individuals were more likely to appraise difficult goal pursuit as a challenge, which in turn culminated in higher effort-based coping and lower giving-up coping. In contrast, controlled goal motives conduced to perceiving the goals as a threat and were associated with giving-up coping. Extending Ntoumanis et al., effort-based coping was adaptive only

when it was employed in the pursuit of an attainable goal, as shown by the interaction between effort coping and strategic goal pursuit choice. In situations where goals interfere with each other or demand similar resources, persisting with multiple competing goals can lead to a decrease in overall progress and reduce the likelihood of attaining either goal; thus, tradeoffs between such goals must be made (Kung & Scholer, 2020).

As in Experiment 2, the cognitive ease of reengagement and ease of disengagement facilitated strategic decision-making during goal striving—namely the prioritization of pursuing a single attainable goal over unattainable multiple goal pursuit. In this context, disengagement and reengagement were complementary to the cognitive mechanisms underpinning effort-based coping. Similar to Experiment 2, MCII increased the ease with which individuals were able to reengage cognitively with an alternative goal but did not interact with autonomous goal motives, providing further support for the proposition that the effects of these two factors are complementary but independent. Autonomous goal motives did not predict ease of reengagement in the whole sample, but in the subset of participants who behaviorally reengaged by switching to single goal pursuit autonomous motives were a predictor of ease of reengagement. Like Experiment 2 and Ntoumanis, Healy, Sedikides, Smith, et al. (2014), we demonstrated that autonomous motives are associated with efficacious goal adjustment by facilitating the cognitive ease of goal reengagement. Interestingly, the negative association between controlled motives and the ease of goal disengagement found in Experiment 2 was replicated here.

In contrast to Experiment 1, we did not obtain evidence that MCII moderated the effect of controlled goal motives on threat appraisals. This null finding may be due to differences between the corresponding experimental protocols. In Experiment 1, participants did not have the option of reengaging with an alternative task, and thus MCII was effective when it encouraged persistence with an attainable goal. Conversely, in the current experiment, MCII was most effective at facilitating goal progress when it encouraged reflection on the attainability of both goals, ultimately leading to goal adjustment. This explanation is consistent with previous research showing that goal striving with implementation intentions is characterized by flexible tenacity, that is, the tendency to persist with goal-directed behavior when the cost of doing so is bearable and to disengage when the cost of persistence is excessive (Legrand et al., 2017).

In summary, Experiment 3 amalgamates two separate but interrelated processes that affect goal selection and progress. One process involves cognitive appraisals and coping mechanisms to strengthen goal persistence, and the other process involves the cognitive mechanisms of ease of reengagement and ease of disengagement to facilitate strategic goal adjustment when goal striving becomes unattainable. The two processes have complementary effects on goal progress. Specifically, persistence is only beneficial for goal progress when employed towards an attainable goal. Goal adjustment processes enable individuals to prioritize single, attainable goals and cognitively disengage from unattainable multiple

goal pursuit. As in Experiments 1 and 2, both these processes were facilitated by MCII training and autonomous goal motives.

7 | GENERAL DISCUSSION

Our research combines two separate but related aspects of goal pursuit—persistence and disengagement—to address the question of whether people can become strategic by deciding early on in their goal pursuits whether to persist with a difficult goal or give up and strive for a compatible goal. Using the Tripartite Model of Goal Striving (Ntoumanis & Sedikides, 2018) as a framework, we describe how interactive and main effects of goal motives and MCII can contribute to efficient goal pursuit by encouraging the strategic selection of self-regulatory responses to attainable, unattainable, and multiple competing goals. Across three experiments, we replicated prior findings and provided novel extensions of theories of self-regulation (i.e., the Self-Concordance Model), using objective indicators of goal persistence, disengagement, and progress. The findings support many, but not all, predictions of the Tripartite Model. Overall, we showed that MCII and goal motives both positively influence goal persistence with attainable goals and disengagement/reengagement in the face of unattainability. Furthermore, we illustrated that the strategic use of these self-regulation behaviors is related to goal progress with attainable goals, multiple goal management, and increased psychological well-being following goal reengagement. We provided some evidence that MCII can moderate the negative effect of controlled motives on goal progress when persistence is the most adaptive strategy. Contrary to the predictions of the model, however, we did not obtain evidence that MCII moderates the influence of autonomous motives on goal disengagement.

7.1 | Pursuit of difficult but attainable goals

We demonstrated that motivation for goal pursuit based on intrinsic interest or personal valuation of the goal (i.e., autonomous goal motives) contributes to persistence with difficult but attainable goals (Experiments 1 and 3). We also replicated findings by Ntoumanis, Healy, Sedikides, Duda, et al. (2014) regarding the mediating role of challenge appraisals and effort-based coping in the relations between autonomous goal striving and goal persistence. Furthermore, we disentangled goal progress from goal persistence that were treated interchangeably by Ntoumanis et al. On the other hand, controlled motives for goal pursuit stemming from internal or external pressures and self-worth contingencies negatively impacted goal progress when pursuing difficult but attainable goals. Our results indicate that the negative relation between goal progress and controlled motives may exist because such motives predicted appraisals of the goal as a threat, leading to giving-up coping strategies.

We showed that training individuals to use MCII can reduce perceptions of threat appraisal in the presence of controlled goal

motives during single goal pursuit. Threat appraisals are presumed to arise due to low goal commitment (Lazarus & Folkman, 1984; Ntoumanis et al., 2009). The ability of MCII to strengthen goal commitment (Oettingen & Gollwitzer, 2010) may explain how MCII serves to decrease the negative association between controlled goal motives and threat appraisals. This interaction was not replicated in Experiment 3 in the context of multiple goal pursuit, possibly because Experiment 1 participants did not have the option to disengage, and hence MCII was effective in promoting goal commitment.

7.2 | Pursuit of unattainable goals

Prior work has indicated that autonomous motives can make it more difficult to let go of an unattainable goal, but can positively influence the ability to reengage with an alternative goal (Ntoumanis, Healy, Sedikides, Smith, et al., 2014). This finding was partially replicated in the context of unattainable goals in Experiment 2 and multiple conflicting goals in Experiment 3. In both cases, although autonomous motives did not impede ease of disengagement from an unattainable goal, they positively predicted the ease of reengagement with an alternative, more attainable goal.

The decisional phase that directly precedes disengagement from an unattainable goal is commonly termed an “action crisis” and engenders negative impacts on both physiological and psychological well-being (Brandstätter & Schuler, 2013). Autonomous goal motives can act as a buffer against action crises (Holding et al., 2017, 2021). We suggest that this may arise due to the association between autonomous motives and reengagement. This argument is supported by results from Experiment 2 and the wider literature (Barlow et al., 2020) indicating that timely goal adjustment through reengagement produces improved well-being outcomes. In contrast, controlled motives have been linked to an increase in the likelihood of experiencing action crises (Holding et al., 2017; Holding et al., 2021). In both Experiments 2 and 3, controlled goal motives were associated with greater difficulty disengaging from the goal; this may explain the association between controlled motives and action crises.

Furthermore, in Experiment 3, we showed that the process of goal reengagement moderates the effect of effort coping on goal progress when faced with an unattainable goal. When two goals conflicted, coping by putting effort into both goals simultaneously led to reductions in overall performance; however, when an individual chose to disengage strategically from one goal and reengage with a more attainable single goal, effortful persistence led to greater goal progress. This finding provides experimental evidence for the idea that persistence with unattainable goals is draining on resources and can ultimately yield repeated experiences of failure, whereas cognitive disengagement and reengagement enable continued and successful goal progress (Carver & Scheier, 2017; Wrosch et al., 2003). Our moderation finding also aligns with theories on goal selection, suggesting that in multiple goal pursuit situations, individuals should seek to maximize

attainment expectancy by prioritizing goals that are most likely to be achieved (Vancouver et al., 2010).

Contrary to our original hypotheses and the Tripartite Model, MCII did not moderate the influence of autonomous motives to facilitate disengagement from unattainable goals. Nonetheless, MCII did generate a main effect on goal reengagement. Experiments 2 and 3 represent the first example of MCII explicitly being used to facilitate goal reengagement when goals are unattainable, or when resource constraints make the simultaneous pursuit of multiple goals impossible. The lack of the predicted moderating effects of MCII on autonomous goal motives suggests that goal motives and MCII may exert independent influences on goal reengagement. It is also possible that null interactive effects could be due to the tasks in the experiments being novel to the participants. Participants did not have prior experience with the goals, and thus may have found it inherently easier to disengage than they would from a longstanding goal. Although the tasks were novel, the situation encountered by participants was similar to an aptitude test, exam, or being invited to solve a unique problem on the spot by a work colleague. Obviously, individuals have different motives for performing in such situations; some may feel obliged to do so, others may enjoy the intellectual challenge. Thus, despite the artificial nature of our experimental protocol, we argue that the results are potentially applicable to various real-life situations.

7.3 | Pursuit of multiple goals

Although previous research on multiple goal pursuit has been concerned with issues such as the timing and order of goal pursuit (Neal et al., 2017), intergoal interference and facilitation (Elliston et al., 2020), goal valence (i.e., approach and avoidance; Ballard et al., 2016), and goal hierarchies (Fishbach & Zhang, 2009), research on motives underlying multiple goal pursuit is scarce. For instance, Smith et al. (2011) identified motivational profiles in student-athletes based on various configurations of autonomous and controlled goal motives and examined how such profiles differed on well-being. However, these authors did not assess indicators of goal self-regulatory responses or goal performance within either goal type. Experiment 3 contributes to the multiple goal striving literature by showing that goal motives also play a role during multiple goal pursuit, not only in facilitating goal reengagement with a single goal when multiple goal demands are too high, but also in promoting effort-based coping once a single goal is selected. This aligns with work on multiple goal striving indicating that multiple goals are balanced through an ongoing prioritization process (Louro et al., 2007).

Similarly, there has been no research on how MCII affects multiple goal pursuit. In the current research, we showed that when goals are incompatible, both MCII and autonomous goal motives play key roles in determining both the cognitive ease with which individuals are able to readjust their focus to concentrate on single goal pursuit and the effort that they put into goal striving. We

illustrated that when goals compete, exerting effort coping over multiple goals is not likely to contribute to overall progress; however, if the process of adjustment is engaged successfully and the individual scales back to attempt a single goal, effort coping is positively associated with progress. Thus, our research uses multiple goal striving to demonstrate how goal disengagement and persistence are interrelated processes.

7.4 | Theoretical and applied implications

Taken together, our work produced insights regarding strategic goal setting when faced with attainable goals, unattainable goals, and multiple conflicting goals, which advances basic research on goal striving. The development and testing of a trainable strategy (MCII) for encouraging not only persistence, but also reengagement, evinces that metacognitive strategies can be used to help individuals to decide early on whether to persist with attainable life goals or adjust striving.

Our work has both theoretical and practical implications. On the *theoretical* side, we expanded the self-regulation literature on persistence, disengagement, and reengagement (Carver & Scheier, 2005, 2017; Wrosch et al., 2013) by demonstrating that self-regulation processes can be optimally chosen (rather than testing the consequences of these processes as past research has done). Further, we advanced the Self-Concordance Model and Self-Determination Theory literatures by examining how the influence of different goal motives on goal pursuit can be strengthened via the implementation of trainable metacognitive strategies (i.e., MCII). Moreover, we extended the MCII literature, which has focused mainly on attainable goals and has overlooked the role of goal motives in influencing the effectiveness of MCII training for adjusting unattainable goals. Finally, we offered novel extensions to the multiple goal pursuit literature by examining how MCII and goal motives predict self-regulatory responses when the pursuit and attainment of multiple simultaneous goals become unfeasible.

MCII has been widely used as an intervention to encourage goal persistence in a variety of applied settings (for reviews, see Cross & Sheffield, 2019; Wang et al., 2021). On the *practical* side, we develop and test an MCII protocol for encouraging strategic goal pursuit through persistence, disengagement, and reengagement. This has implications for numerous life domains where individuals engage in pursuit of difficult goals. The current research broadens the potential applicability of MCII interventions by demonstrating their utility for encouraging strategic adjustment in the face of failing goals, as well as the successful management of multiple goals. Appropriate responses to goal striving difficulties can enhance goal attainment, personal and social well-being, health, and productivity (Carver & Scheier, 2017). Although we conducted our experiments in laboratory settings, they represent an evidentiary basis for testing MCII in practical settings where strategic goal striving through disengagement and reengagement may be particularly beneficial, such as when getting older (Haase et al., 2013), during physical

rehabilitation (Wrosch & Scheier, 2020), or major life transitions (Holding et al., 2021).

7.5 | Limitations

Across all experiments, we measured goal progress rather than attainment as the primary outcome, because our setup did not allow us to adjust the task difficulty to match the ability of each individual participant (as in Ntoumanis, Healy, Sedikides, Duda, et al., 2014; Ntoumanis, Healy, Sedikides, Smith, et al., 2014). Additionally, we decided on path modeling a priori (in our registration protocol) to pre-empt computational issues associated with converging complex SEM models and modeling interactions between observed variables and latent variables. Having a simpler path model, as opposed to a latent variable SEM, allowed us to maximize statistical power, given our resources and the samples we were able to recruit. We acknowledge that a latent variable approach might have been preferable; however, we maintain that the path model approach used here does not undermine the validity of the results. Given the high internal consistency of measures in all three experiments (smallest $\alpha = .75$), there is no large discrepancy between using an averaging approach versus a latent variable approach. The latent variable approach is more useful when variables have poor reliability, as this approach provides path coefficients disattenuated from measurement error. For comparative purposes, we constructed exploratory models using latent variables. Model fits were substantially reduced, and in the case of Experiment 3, the model did not converge. We have made these analyses available on the project's OSF page.

In Experiment 3, we addressed only the relations between two conflicting goals due to practicalities. However, as Kung and Scholer (2021) pointed out, intergoal dynamics in natural settings are far more diverse than simple conflicts between two goals. Goals have complex hierarchies that can both interfere with and facilitate multiple goal attainment. For example, working long hours to meet a financial goal might directly interfere with a leisure goal in the short term, but indirectly facilitate the same goal in the long term by providing more financial resources to invest into it. Follow-up research would need to test whether the current findings can be applied to contexts that include more than two goals and different types of intergoal dynamics (e.g., facilitation).

Although we attempted to maximize generalizability by recruiting participants from diverse ethnic backgrounds, our samples were largely from the United Kingdom and the United States. Research has indicated that the Self-Concordance Model can be applied across a variety of cultures (Sheldon et al., 2004), yet MCII may be less generalizable. For example, its utility for individuals living in collectivist societies may be reduced, as individuals in these cultures are more likely to perceive implementation intentions as an oversimplification of potentially uncontrollable obligations (Kizilcec & Cohen, 2017). Additionally, the artificial nature of both the goals and the tasks used here could potentially limit the generalizability of the

results to more naturalistic settings. Nevertheless, there is a body of literature demonstrating that laboratory-based findings related to MCII typically generalize well to applied settings (e.g., see Wang et al., 2021). A natural next step for this program of research is to extend it to real-world problems and goals.

Meta-analytic data (Wang et al., 2021) suggest that MCII is more effective when delivered in person ($g = 0.465$) rather than via a written or computer-based exercise ($g = 0.277$). Where possible, researchers should attempt to replicate our findings using face-to-face delivery methods when administering MCII. In addition, a potential criticism of the MCII intervention used in Experiments 2 and 3 is that the active encouragement of participants to weigh their likelihood of attainment and think about alternative strategies may reflect demand characteristics. We implemented this intentional modification of the typical MCII protocol (for an example of a typical protocol, see Adriaanse et al., 2010) with the aim to develop and test a version of MCII that could be effective not only for goal persistence but also for goal adjustment. Thus, any differences in behavior caused by this modification should not be seen as demand characteristics, but rather an intentional outcome of the MCII intervention. In Experiment 3, where the unattainability of the initial goal was arguably subtler than in Experiment 2, a considerable proportion of participants chose to persist with both goals rather than pursue the strategic option of single goal pursuit, even in the MCII condition. This evidence counters the possibility of demand characteristics being present in the MCII training. Finally, although the experimental manipulations used here are a strength of the current studies in that they go some way to establishing causal relations, the astute reader will note that many of the findings presented here are correlational. Good model fits based on a predetermined theoretical framework for all three studies indicate that our proposed models are, at the very least, plausible given the data; however, it is our hope that these models spur further experimental research that provides stronger evidence for causality.

7.6 | Future directions

Future research could examine the contribution of autonomy-supportive and controlling social environments in influencing goal motives and the efficacy of MCII (Koestner et al., 2015). Researchers can also extend our work by examining the interplay of goal motives and MCII in dyadic goal striving (Gaudreau et al., 2010). Moreover, our work can form a basis for developing and testing time-efficient, scalable, and inexpensive interventions (e.g., new mobile apps, online access to goal striving advice) focusing on fostering autonomous goal striving and MCII. Such interventions are applicable to a variety of challenging life goals such as saving money to buy a house, new parents striving to balance parenting, and career goals.

In Experiment 3, we examined strategic self-regulation when multiple goals interfere with each other. There are, however, situations in which it is possible to attain multiple goals, particularly if some of the goals are easy (Orehek & Vazeou-Nieuwenhuis, 2013).

Extending the current research to examine whether and how MCII and goal motives can facilitate self-regulation processes when multiple goals are attainable (c.f. Riediger & Freund, 2004), either by striving simultaneously or by attempting one goal after the other (Orehek & Vazeou-Nieuwenhuis, 2013), would make a useful contribution to the multiple goals literature. We presume that individuals who are more autonomously motivated to complete multiple goals would apply more effort to multiple goal striving, and that MCII could assist individuals to commit to such goals, particularly if one or more are driven by controlled motives.

8 | CONCLUSION

Lance Armstrong's reference to "quitting lasting forever" should be taken with a grain of salt, as with some other claims he made. Our findings make a case for the strategic use of resources when pursuing difficult goals. The three experiments presented here test various aspects of the Tripartite Model and indicate that, although several of its claims are supported, there is mixed evidence for moderating effects of MCII on the influence of goal motives. Importantly, across the three experiments, we showed that both MCII and goal motives have a role to play in strengthening persistence and goal progress with difficult but attainable goals, as well as in facilitating goal disengagement followed by reengagement when faced with unattainable goals. Each experiment provides a separate explanation of why persistence, disengagement, and reengagement might be preferred as a behavioral choice in a variety of goal striving contexts.

ACKNOWLEDGMENT

This project was funded by an Australian Research Council grant (DP200101555) awarded to the authors (PI: Ntoumanis). Open access publishing facilitated by Curtin University, as part of the Wiley - Curtin University agreement via the Council of Australian University Librarians.

DATA AVAILABILITY STATEMENT

All data for this project has been made publicly accessible via the Open Science Framework (<https://osf.io/6q2vw/>).

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ENDNOTE

¹ As per the pre-registration, we also measured personality traits (John et al., 1991) and goal striving tenacity/flexibility (Brandtstadter & Renner, 1990) in all experiments. Additionally, in Experiment 1, we also measured the following variables: additional coping strategies (venting

of emotions, use of imagery, thought control); performance satisfaction; posttest motives for repeating the experiment; and short-term memory. In Experiment 2, we measured: attainment expectancy and affected at the time of disengagement; rumination; and posttest motives for repeating the experiment. We measured these variables for potential exploratory analyses and future hypothesis generation, but did not analyze the pertinent data. We provide complete data and the items used to measure these variables on the project's OSF page.

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How to cite this article: Riddell, H., Sedikides, C., Gucciardi, D. F., Ben, J., Thøgersen-Ntoumani, C., & Ntoumanis, N. (2022). Goal motives and mental contrasting with implementation intentions facilitate strategic goal persistence and disengagement. *Journal of Applied Social Psychology*, 52, 1094–1116. <https://doi.org/10.1111/jasp.12915>