LEADING US TO WELL-BEING: APPLYING IDENTITY LEADERSHIP TO
STRUCTURED GROUP EXERCISE CONTEXTS

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CONTENTS

ABSTRACT

The identity leadership approach, which states that leadership is a dynamic process involving influencing to achieve common goals (Haslam, Reicher & Platow, 2020), has been applied to a variety of organizational and group contexts, and there is evidence to suggest that it can influence several outcomes including that of performance (Miller et al., 2021) and well-being (Steffens et al., 2017). Considering this potential and the acknowledgement that exercise leaders can positively influence exercisers (Killingbeck et al., 2017), the question of identity leadership within exercise settings seems worthy of further investigation; therefore, this thesis aimed to examine and apply the identity leadership model in structured exercise groups. Three studies are reported in three empirical chapters. Chapter 2 considered the relationships between identity leadership, mental well-being, and physical health, and the extent to which group identity and mobilisation of effort may mediate these relationships with a population of group exercisers (n =243). The findings indicated positive relationships between all variables and that most of the identity principles were significant predictors beyond group identity in hierarchical regressions; in addition, the relationship between identity leadership, mental well-being, and physical health was serially mediated via group identity and the mobilisation of effort. Extending these findings further experimentally, Chapter 3 utilised a quasi-experimental design (n =102) and tested the effect of exercise leaders engaging in the four principles of identity leadership (vs. not) on the group identity, mobilisation of effort, positive/negative affect and the intention to return of exercisers and non-exercisers. Significant differences were found across the four principles, with participants responding to the high identity leadership condition (compared to the control), indicating more significant levels of group identity, mobilisation of effort, positive affect, and intention to return to class, together with lower levels of negative affect. Building on these experimental results, the four principles of the approach were then applied in the form of an

intervention study in Chapter 4. Here, two group exercise instructors were trained to deliver the original 5Rs programme with older adult exercise groups ($n = 27$) over an eight week period. A pre and post-design was utilised to test the efficacy of the approach and identity leadership's impact on group identity, mobilisation of effort, mental well-being, physical health, affect, and fitness markers. Only fitness markers showed a significant change; however, all variables indicated positive shifts, producing small to large effects (Cohen's d between 0.2 and 0.7), reflecting potential practical significance. Chapter 5 discusses the overall theoretical and practical implications of the findings, together with the strength and limitations of the programme of study. Overall, this thesis makes an original and significant contribution to the literature by suggesting that identity leadership has the potential to enhance the well-being of group exercisers through group identity and mobilisation of effort, by considering and applying the four identity leadership principles experimentally and via the 5Rs programme in group exercise settings, as well as extending leadership research within exercise psychology.

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STRUCTURE OF THE THESIS

Over recent years, the subject of identity leadership has been widely researched across a variety of settings (i.e., organisations, sporting environments, and the military), primarily through correlational and experimental designs which have provided evidence for its structure and effects (Haslam & Reicher, 2007; Miller et al., 2020, 2021; Steffens et al., 2018). However, less is understood about its application within structured group exercise settings with group exercise instructors, and how the approach can be developed and applied in practice. One of the main objectives of psychology is to find ways of applying theory to real-world environments to promote change (APA, 2022), and the current programme of research acknowledges this. Extending the literature on the application of identity leadership in exercise settings (Rowe et al., 2021; Steffens et al., 2019, Stevens et al., 2018; Stevens, White et al., 2022), this thesis takes a pragmatic approach in that the researcher accepts that knowledge is developed from a variety of objective and subjective methods, and in doing so applies quantitative methods to understand further the established theory and its potential influence on group exercisers' well-being, while also attempting to interpret and apply the identity leadership model. This research programme provides a logical progression, beginning with a cross-sectional study before moving into a quasi-experimental investigation and ending with an applied intervention. Therefore, in considering the identity leadership model within structured group exercise environments, the thesis consists of the following studies:

Chapter 2 (Study 1) employs a correlational design, in keeping with most identity leadership studies within exercise contexts (Rowe et al., 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022). Initially investigating the associations between identity leadership, mobilisation of effort, mental well-being and physical health, the study considers the extent to which identity leadership could explain these outcomes beyond group

identity. Further, as suggested in the general exercise literature (Estabrooks et al., 2012), the study used mediation analysis to understand these relationships and to test the validity of the identity leadership model.

Chapter 3 (Study 2) builds on these findings by exploring the variables and the four principles experimentally by using a novel experimental vignette methodology (EVM; Aguinis & Bradley, 2014), a method that is utilised in other identity leadership experimental studies (Evans et al., 2021; Miller et al., 2021; Slater et al., 2018, 2019). As part of this design, the four identity leadership principles were operationalised based on the available literature (Haslam, Reicher & Platow, 2020); and then were manipulated to provide a high identity leadership condition (compared with the control condition). As part of the 2 X 2 experimental study, there was also a focus on comparing non-exercisers (i.e., those who do not currently adhere to current minimum physical activity recommendations) and exercisers (i.e., those who do currently adhere to the minimum recommendations).

Chapter 4 (Study 3) extends the findings from Chapter 3 (Study 2) by applying the original 5Rs model of Identity leadership (Haslam, Reicher & Platow, 2020). Based on the findings of the previous chapters, other relevant studies (Fransen et al., 2020; Haslam et al., 2017; Slater & Barker, 2019) and recommendations (Haslam, Reicher & Platow, 2020), the model was applied to group exercise instructors leading community older adult exercise groups. As the first study in the literature to utilise the original model to group exercise instructors who lead structured exercise groups, the study involved developing and administering a leadership training intervention, which was then applied within the exercise group setting. Considering the efficacy of the 5Rs in this context, the influence of identity leadership on group exercisers was assessed using various measures and by gleaning the perspectives of the leaders themselves.

In sum, this thesis uses a variety of methodologies to understand further and practically apply the existing identity leadership literature to structured group exercise environments. Each chapter of the thesis has been prepared as a journal article for future submission; therefore, there is repetition in some of the material found in the literature review and chapter introductions.

CHAPTER 1: LITERATURE REVIEW

1.1 Introduction

The question of leadership has proved to be an enduring topic of discussion and examination, due to it being inextricably linked with human social development and the psychology of group membership (Hogg & van Knippenberg, 2003). In recent years, this debate has been applied to a wide range of settings, from political institutions, the military, business organisations, and sports and exercise environments, generating an ever-increasing research base (Dinh et al., 2014). Various leadership approaches and theories have attempted to define leadership and what constitutes its effectiveness, resulting in a heterogenous literature that fails to offer a universal definition (Stodgill, 1974). Nevertheless, despite the nature of the literature, it is argued that there are some overarching components of leadership, including acknowledging that leaders play a role in influencing and enabling groups to reach common goals (Northouse, 2019). Further, researchers have shown that leadership has the potential to affect a range of behaviours and beliefs, including those relating to well-being and health (Krug et al., 2020, 2021; Fransen et al., 2019; Steffens et al., 2018). This potential has led to increased interest in the role of leadership in exercise settings (Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022), which, although recognised as an important potential social factor in promoting exercise (Beauchamp, Welch & Hulley, 2007; Ntoumanis et al., 2017), studies examining this phenomenon are few in number, and limited in scope (Estabrooks et al., 2012). With increasing concerns about the consequences of worldwide inactivity in terms of promoting poorer mental and physical health (WHO, 2010), and the criticism that formal exercise programmes may be overly individualistic and under-emphasise social factors (Grant et al., 2015; Loughead et al., 2001), further examination of leadership in exercise settings appears warranted.

Against this backdrop of concerns and the limited research available regarding exercise leadership, the overarching aim of this PhD is to examine and apply the identity leadership model (Haslam, Reicher & Platow, 2020) to structured instructor-led group exercise settings, which has been found in the literature to be an effective and popular form of physical activity (Burke et al., 2006). Underpinned by social psychology and the social identity approach (Tajfel 1974; Tajfel & Turner, 1979; Turner, 2010; Turner et al., 1987, 1994), which stresses the importance of group membership and the internalisation of group identity, the identity leadership literature has been applied to various organisational settings, including business (Haslam et al., 2017; Krug et al., 2020), the military (Janson & Dalahaij, 2020) and sporting environments (Franzen et al., 2015, 2019; Mertens et al., 2020, 2021; Slater & Barker, 2019). Further, more recently, there has been an interest in applying this to physical activity and exercise environments (Fransen et al., 2022; Rowe and Slater, 2021; Steffen et al., 2019; Stevens et al., 2018. Stevens, White et al., 2022) and some progress has been made. Therefore, the key aim of this chapter is to outline the relevant theory and research to provide a context for the application of Haslam, Reicher, and Platows' (2020) identity leadership model within structured exercise settings, and to consider its potential to influence group exercisers' mental well-being and physical health. Acknowledging that well-being is a complex, multi-faceted concept consisting of many overlapping intrinsic and extrinsic elements (i.e., emotional, physical, social, Hone et al., 2015), this research focuses on two aspects of well-being, which have been considered in the general and specific leadership literature (Harms et al., 2017; Krug et al., 2020; 2021; Steffens et al., 2018).

Defining leadership as "a process by whereby an individual influences a group of individuals to achieve a common goal" (Northouse, 2019, p. 5), the literature review will begin by giving a general analytical overview of the leadership literature from traditional to more contemporary leadership approaches, highlighting the available group exercise studies,

before considering the theoretical background of the identity leadership model and discussing the identity approach. There will then be a consideration of the theory and research around the four principles of identity leadership, its application in the form of the 3R's/5R's identity leadership model, and how this applies to the context of structured group exercise. From the extensive available literature, the chapter highlights the literature underpinning this research programme's rationale and aims. Finally, a summary and aims of the thesis are provided.

1.2 Defining Leadership

The proliferation of leadership theories and the exponential growth of the leadership literature has resulted in numerous definitions of leadership, with DuBrin estimating that there are around 35,000 definitions of leadership in the academic literature (DuBrin, 2001, p.5). However, it is acknowledged that some common themes and frameworks do emerge from these definitions. Agreeing with this stance, Northouse argues that there are four key components of leadership, with leadership as: (i) a process; (ii) involving influence; (iii) occurring in a group context; and (iv) focused on common/group goals (Northouse, 2019). To further elaborate, leadership as a process refers to the interactive relationship between the leader and group members, implying that leadership goes beyond the formal leader; leadership involving influence indicates that the leader can influence group members for the benefit of the group; leadership occurs in the context of a group setting and thereby is a social process (as opposed to an individual one): and leaders focus on facilitating group members' motivation and efforts to achieve mutual goals.

As Northouse's general definition of leadership encompasses the central tenets of identity leadership, which "involves influencing others so that they are motivated to contribute to the achievement of group goals" (Haslam, Reicher & Platow, 2020, p. 1) and is often cited in the identity leadership research, this definition was chosen to guide the review of the literature within this chapter.

1.3 Traditional Approaches to Leadership

Early theories of leadership emphasise the individual personality traits of leaders. The "great man" approach to leadership argues that leaders are exceptional individuals "born" with the innate qualities and characteristics to lead others (Weber, 1946). In the post-war era, research focused on the specific traits that differentiate leaders from followers, to aid the identification of future leaders in organisations (Haslam, Reicher & Platow, 2020). Despite its intuitive appeal, this trait approach was challenged from the mid-20th century onwards, with researchers reviewing the literature finding a lack of methodological rigour and that the predictive qualities of personality dimensions were variable (Jenkins, 1947; Mann, 1959, Stogdill, 1948). For instance, Mann (1959), who structured his review to consider seven personality dimensions, including intelligence and adjustment, found weak associations between personality dimensions and leadership. As in other studies, intelligence indicated the strongest association; however, the effect size was small. Further, Stogdill's (1948) findings led him to the conclusion that "an adequate analysis of leadership involves not only the study of leaders, but also of situations" (p. 65), thus highlighting the importance of the social situation in which a leader finds themselves, and the need to study the interaction between traits and situational variables.

Discouraged by the weaknesses of the trait approach, researchers turned their attention to a more behavioural understanding of leadership, extending the research to consider how leaders behave in relation to influencing their followers. Initially conducted in experimental settings, these studies looked to identify the behaviours of leaders, establishing that leadership consists of combining task and relationship behaviours to facilitate goals and objectives (Kahn & Katz, 1953). Describing these behaviours as 'leadership styles', the various models tend to categorise these in terms of: (1) concern for task; (2) concern for people; (3) authoritarian; and (4) democratic (Alimo-Metcalfe, 2013). However, despite the

behavioural approach extending the literature by focusing on leadership task and relational behaviours and providing evidence for follower satisfaction, it has been less successful at predicting leader effectiveness and group outcomes (Chemers, 2000; Yukl, 2008).

Much of the research in exercise settings applies this behavioural approach, reflecting how the domain has failed to keep up with advances in the leadership literature. From the available studies, it appears that researchers have either considered the preference for specific behaviours, such as instruction and availability (Caperchione et al., 2011; Dunlop et al., 2013; Izumi et al., 2015; Loughead et al., 2001) or have compared leadership styles including bland vs. enriched styles, and their impact on variables such as enjoyment, coherence, and adherence (Bray et al., 2005; Fox et al., 2000; Martin & Fox, 2001; Turner et al., 1997). For example, in an intervention study by Izumi et al. (2015), the researchers considered the relationship between leader behaviours, group cohesion, and participation in a walking programme. In this study, the researchers found that leaders' behaviours (i.e., being supportive) increased social cohesion and participation in the programme. However, an earlier experimental study conducted by Fox et al. (2000) considered the impact of socially enriched vs. bland leadership styles and group dynamics (socially enriched vs. bland dynamics) on participant enjoyment and intention to return to the exercise class, and the results are mixed. Using a 2 X 2 design, the results indicated that the socially enriched leadership style (i.e., socially interactive, giving positive feedback and encouragement) seemed to result in greater participant enjoyment compared to the bland leadership style (i.e., focusing on technical corrections, being non-interactive and omitting supportive behaviours). Also, that enjoyment increased when the socially enriched condition was combined with the socially enriched group dynamic condition (i.e., group confederates encouraging others, social interacting, and being positive compared to not providing these elements). However, there were no significant differences between the socially enriched vs. bland leadership on

intention to return to the class, measured on a 0 to 100% scale. Further, there is an overlap between the socially enriched leadership and the confederate socially enriched group dynamic behaviours, which questions whether the leader may have directly influenced the group dynamics.

This emphasis on the supportive behaviours of the leader has been found more recently in the literature around the need-supportive leadership approach (Amorose & Anderson-Butcher, 2007; Mageau & Vallerand, 2003). Based on self-determination theory or SDT (Deci &Ryan, 2000), which distinguishes between high quality (i.e. self-determined or autonomous) and low quality (i.e., controlled or amotivation) motivation, the approach argues that sport or exercise motivation will be of high quality and sustainable when the leader or instructor supports three basic psychological needs. These needs include: (i) autonomy (i.e., actions linked to interests, values, and personal goals); (ii) relatedness (i.e., connected to others); (iii) and competence (i.e., able to feel effective and up to the challenge), this approach stresses the importance of leaders and instructors to motivate by displaying the behaviours that satisfy the required needs of team members, i.e., competence-supportive behaviours may include providing supportive feedback (Mageau & Vallerand, 2003). Evidence suggests that leaders perceived as displaying need-supportive behaviours in sporting contexts may influence positive outcomes, including performance (Gillet et al., 2010) and well-being (Adie et al., 2012). Further, in considering exercise environments, it is suggested that exercise instructors can influence need satisfaction, autonomous exercise motivation, and adherence by adopting SDT communication styles (Edmunds et al., 2008; Hancox et al., 2015; Ntoumanis et al., 2017; Wilson et al., 2003). In the study by Ntoumanis et al., 2017, instructors were trained to deliver a motivationally adaptive communication style, adopting behaviours demonstrating autonomy-support, structure and interpersonal involvement, which have been identified as important elements in the SDT literature (Michie

et al., 2011; Reeve, 2002). The study indicated that although there was a significant increase in perceptions of adaptive instructor behaviours, psychological need satisfaction and stronger intentions to return to class, there were no changes in actual exerciser motivation. These mixed results have been found in the wider application of SDT to exercise (see the review of Teixeira et al., 2012). Although need-supportive leadership makes a valuable contribution to theory and practice, this SDT approach is criticised for not considering that the individual self is not a fixed entity that changes according to social context and the role of leaders in potentially influencing group members' values and goals (Steffens et al., 2020).

Acknowledging the limitations of approaches that focus on leaders' personalities or behaviours, and responding to Stogdill's (1948) earlier criticisms, also resulted in the development of situational models, highlighting the importance of contextual factors. According to this approach, effective leaders adapt their leadership style according to the situation. Models identify a range of factors, including where leaders interact with followers or subordinates (Vroom & Jago, 2007). An example of this is found in the sports coaching literature, with the multidimensional model of coach leadership (Chelladurai, 1984). Focusing on three aspects of leadership behaviour: actual leader behaviour; leader behaviour preferred by subordinates; and required leader behaviour, the model suggests that satisfaction and performance depend on the congruence of these three conditions. Further, these leadership behaviours are influenced by the characteristics of the situation, the leader, and the members (e.g., maturity, age). Primarily applied in sports settings, there have been some attempts to utilise this in exercise environments (Hannus and Laev, 2011; Rosenkranz, 2001), providing inconclusive results. Although the multidimensional model offers a framework to consider leadership in both sports and exercise settings and considers follower preferences, researchers have questioned the central tenets of the model following inconsistent findings (Riemer & Toon, 2001).

1.4 Contemporary Approaches to Leadership

In response to a new economic reality of uncertainty and unpredictability and the limitations of existing leadership models to operate in this environment, new leadership models emerged that promoted organisational change (Bryman, 1993). Described as signalling the introduction of a new neo-charismatic paradigm (House & Aditya, 1997), these new models include charismatic (Conger, 1999), transformational (Bass, 1985; 1998), and transactional leadership (Burns, 1978). With transactional leadership, the approach focuses on the exchange relationship between the leader and followers, involving followers being rewarded for meeting the objectives or goals set by the leader (or given sanctions for failing to achieve them). Thus, if a successful transaction occurs and the needs of both parties are met, the leader, where possible, will seek to reinforce this success (Burns, 1978).

Extending Burns' (1978) transactional approach, Bass's transformational leadership model pays greater attention to the needs of followers by looking to motivate followers to achieve beyond their normal expectations and to prioritise group or organisational goals above their own (Bass, 1985; 1998). Emphasising their ability to be charismatic and inspirational, transformational leaders can influence their followers' values and performance by demonstrating four main leadership behaviours (Bass & Riggio, 2006). These four behaviours, also known as the "four I's", are: (i) idealised influence - with the leader displaying high levels of integrity and vision, encouraging followers to emulate them; (ii) inspirational motivation, with the leader communicating their expectations of followers which encourages them to work towards the shared vision; (iii) intellectual stimulation, where a leader encourages the followers to challenge held beliefs and assumptions and to consider new ways of thinking; (iv) and individualised consideration, in which a leader focuses on the potential of individuals and the importance of training and development (Avolio, 1999; Bass & Avolio, 1990).

Established as the most popular of the contemporary approaches to leadership, transformational leadership has been widely researched across a variety of different settings, including those of business (Alrowwad et al., 2017), education (Bolkan & Goodboy, 2009) and the military (Hardy et al., 2010), and there is substantial evidence to support its effectiveness (Avolio and Yammarino, 2013; Bass, 1998). Measuring TFL using the Multifactorial Leadership Questionnaire (MLQ), studies have found that the main elements of TFL are significantly associated with follower satisfaction, motivation, and performance (Bass, 1998; Lowe et al., 1996; Skakon et al., 2010, Tims et al., 2011). Further, the TFL approach provides a significant shift in leadership theory, suggesting that leadership is more of a process between leaders and followers that emerges from their interactions (Northouse, 2019).

More recently, there has also been some interest in applying transformational leadership to sporting settings (Arthur et al., 2017), with researchers considering various outcomes, including those related to athlete satisfaction (Kao & Tsai, 2016), performance (Bormann et al., 2016), cohesion (Cronin et al., 2015) and improved well-being (Stenling & Tafvelin, 2014). For instance, in the study by Kao and Tsai (2016), researchers interested in the influence of transformational leaders on psychological health, identified that coaching competency mediated the positive effect of coaches' transformational leadership on athlete satisfaction. However, despite this positive outcome, the empirical findings from the handful of available sports-related studies are mixed, based on cross-sectional methodologies and utilising mainly youth athlete populations (Arthur, 2017). These varied findings are found in the only study in formal exercise settings (Beauchamp, Welch & Hulley, 2007), which examined the relationships between transactional and transformational leadership behaviours and the self-efficacy of exercisers participating in a 10-week structured exercise programme.

Contrary to the study's hypotheses, the researchers found no significant relationships between any of the leadership variables and self-efficacy.

These variable results underscore that although TFL has undoubtedly made an important contribution to the literature, most of the evidence for the model is based on correlational studies, and there is a lack of experimental and applied research. Further, several conceptual and methodological weaknesses are identified; for example, there appears to be considerable overlap between the *Four I's,* which brings into question their construct validity (Tracey & Hinkin, 1998) and the use of the MLQ to assess the effectiveness of the model (Tejeda et al., 2001). In addition, the approach is criticised for having a limited capacity to explain how TFL works (van Knippenberg & Sitkin, 2013), as well as appearing to revert to earlier leadership approaches and promoting transformational leadership as a personality trait or predisposition, emphasising the individuality of the leader and that the leader directs and transforms others (Bryman et al., 1992). Yukl (1999), in his criticism of the 'heroic leader' bias, goes further when he argues that the TFL does not consider reciprocal influence and calls for leadership theory, in general, to consider leadership as a shared process within group and organizational settings. In response to this call, and in recognition that this could enhance the existing literature, recent leadership researchers have begun to consider alternative models in the context of leadership being more of a social process (i.e., distributed and servant leadership). Identity leadership (Haslam, Reicher & Platow, 2020) provides an example of this, and the next section will introduce the social identity approach, which theoretically underpins identity leadership, before analysing this leadership model.

In sum, leadership theory evolved from explaining leadership in terms of personality traits and behaviours to considering the importance of situational factors and follower preferences and characteristics, and latterly to neo-charismatic models such as TFL, which place greater emphasis on the follower, leader-follower interactions, and the process of

change. Further, from reviewing the literature, it is evident that exercise leadership studies are limited and favour behavioural approaches, highlighting the lack of up-to-date research in this domain (many studies are over 20 years old). In addition, in taking a behavioural approach, the conceptualization of leadership and, in general, the utilisation of theoretical frameworks is lacking. Therefore, there is a need for more leadership research to be undertaken in structured group exercise settings, and it seems appropriate, in considering the contexts, to focus on models that provide an explanation of leadership based on group dynamics and processes. Further, while there is an acknowledgement that other recent approaches (i.e. distributed and servant leadership approaches) also consider social processes and shared leadership, identity leadership, with its theoretical underpinning and a large body of literature, is uniquely positioned to develop our understanding of leadership within structured group exercise.

1.5 The Background to Identity Leadership: The Social Identity Approach

The social identity approach is underpinned by the two major theories of social identity (Tajfel & Turner, 1979) and self-categorisation theory (Turner, 2010; Turner et al., 1987), which together provide the dominant approach to our understanding of the importance of group processes on individual and group cognition, affect and behaviour. The social identity approach was influenced by Tajfel et al. s.' (1971) minimal group studies, in which the researchers examined discrimination between social groups and found that when participants were brought together in random groups and given specific tasks, they favoured those members of their group (the in-group), compared to members of another group (the out-group). From these findings, there was recognition that people develop both individual identities based on their unique characteristics and multiple identites based on group memberships. Further, these findings challenged existing theories, which assumed that group behaviour resulted from interdependence, exchange or mutual attraction, and instead stressed

the importance of social identity. Defined as "the individual's knowledge that he (or she) belongs to certain social groups together with some emotional and value significance for him (or her) of this group membership" (Tajfel, 1972, p. 31), social identity is the extent to which an individual feels a sense of belonging to the group.

Developed further as part of social identity theory (SIT), it is recognised that when people define their subjective sense of self from group membership, they: (1) look to determine the meaning and standing of the group by making social comparisons between their in-group and an out-group; and (2) they define their group favourably by positively differentiating it from relevant out-groups, e.g. in terms of values and behaviours (Tajfel & Turner, 1979). For instance, using an exercise example, someone identifying as a cross-fitter will identify with what it means to be part of a cross-fit group by comparing cross-fit to groups that do not exercise or other exercise groups (e.g. Zumba groups) and will be motivated to make comparisons, which will result in them viewing their cross-fit group as being superior, e.g. in terms of being more physically demanding and team-oriented. This process is driven by the motivation to enhance positive identity by belonging to a group, resulting in higher self-esteem and well-being (Tajfel & Turner, 1979). Therefore, when (and to what extent) the cross-fit member's sense of self is defined by socially identifying with the cross-fit group, then the member's self-esteem and well-being will be subject to the standing and circumstances of the group (e.g. a group winning a cross-fit competition will the enhance self-esteem and well-being of group members, and the group losing in a competition is likely to have the opposite effect). This notion of socially identifying with an exercise group is very different from what is described in the literature as 'exercise identity', which is based on individual identity theory and defined as when an individual's self-concept is based on previous exercise behaviour, allowing this to direct future exercise behaviours (Anderson & Cychosz, 1994).

Building on these initial ideas of social identity, these concepts were developed further and applied "within" and "between" groups. Crucially, Turner (2010), based on his observations from the minimal group studies and his recognition that social identity is a cognitive mechanism that makes group behaviour in terms of "social cohesion, cooperation and influence possible" (Turner, 2010, p. 268), introduced self-categorisation theory (SCT) which explains the psychological process that underpins the transition from individual to group identity. SCT proposes that when an individual identifies with a particular group, shared group identity becomes salient. As a result, individual self-perception becomes *depersonalised*, resulting in "I" and "me" becoming "we" and "us", leading to an individual acting less as a unique person and more as a representative group member in line with group values. With depersonalisation seen as a process of self-stereotyping, individuals defining themselves in terms of a particular social identity will attempt to understand and conform to the norms and values of the group through the influence of prototypical group members (Hogg & Turner, 1985, Turner, 2010; Turner et al., 1987). In addition, the processes that lead to people developing group identities include that of comparative fit, which drawing upon the concept of meta-contrast, stresses that individuals will identify with a particular social identity if differences between category members are perceived as less (i.e. and thereby perceiving more commonality) than the differences between other relevant categories (Turner et al., 1994). For example, male and female regular exercisers attending a party are likely to share a social identity of being 'exercisers' when they are mixing with people who are 'non-exercisers' or 'inactive'.

Producing an extensive literature, which initially focused on social identity in the context of attribution and conflict, the social identity approach has been applied to various domains, including organisations (for reviews, see Haslam, 2004; Haslam & Ellemers, 2005; Hogg & Terry, 2000, 2002), well-being and health (Haslam et al., 2009; Jetten et al., 2012),

sport and physical activity (Beauchamp et al., 2018; Stevens, Rees & Polman, 2019; Terry & Hogg, 1996) and leadership (Hogg, 2001; Steffens et al., 2019; van Knippenberg et al., 2003; Zhu et al., 2015). This chapter will now discuss in more detail the application of the social identity approach to well-being, health, exercise and physical activity.

1.6 Social Identity and Well-being: The Social Cure

Acknowledging that groups are vital to us, the social identity approach has been applied to well-being and physical health, resulting in a large body of research that shows that social connections grounded in shared group membership and social identities, provide a 'social cure' by protecting and enhancing individual physical and psychological well-being (Cruwys et al., 2014; Haslam et al., 2018; Haslam et al., 2014, Jetten et al., 2012). Furthermore, shared social identities result in many psychological resources, including connectedness, meaning, and social support, and these resources promote various processes (i.e., trust and control), which are crucial for our overall well-being (Haslam et al., 2018). Thus far, studies have indicated that the sense of social identity afforded by group membership can result in the enhancement of various aspects of well-being, e.g. life satisfaction and positive mood (Cruwys et al., 2013; Greenaway et al., 2015, 2016; Jetten et al., 2015, 2017; McNamara et al., 2021; Outten et al., 2009; Sani et al., 2012), recovery (Buckingham et al., 2013) and health (Haslam et al., 2008, Sani et al., 2015). For example, in the studies by Greenaway et al. (2015), one of the findings suggests that group identity increases a sense of well-being, measured using the three items of perceived life satisfaction, happiness and health. Further, studies have shown that service providers or health leaders can encourage well-being and health by bolstering existing social identities (Bjerregaard et al., 2016), as well as by influencing social identities to improve the health behaviours of specific groups in areas such as obesity (Tarrant et al., 2017) and ageing (Gleibs et al., 2011). Although these studies imply the potential of leaders to promote well-being and physical

health by supporting the development of group social identity, the general social cure literature does not directly focus on the role of leadership.

Nevertheless, this potential to encourage mental and physical well-being has led to researchers applying the social identity approach to physical activity and exercise (Beauchamp, Carron et al., 2007; Beauchamp et al., 2012; Bruner et al., 2021; Dunlop & Beauchamp, 2011; 2013; Stevens, Rees & Polman, 2019; Terry & Hogg, 1996). Inactivity is a global problem linked to increasing rates of physical and mental ill-health, and programmes to increase activity in populations appear to have had limited success (Guthold et al., 2018). Further, there has also been a growing recognition that there needs to be a greater emphasis on effort (as opposed to simply focusing on participation) when promoting and encouraging activity to improve health (Lee et al., 2002; Steele et al., 2017). As the existing literature stresses the preference for people to exercise in group settings (Beauchamp, Carron et al., 2007; Wilson & Spink, 2009) and the importance of formal exercise groups in encouraging participation and adherence (Beauchamp et al., 2018; Burke et al., 2006; Carron et al., 1996; Estabrooks, 2012; Gilbert et al., 2017), the social identity approach with its emphasis on group belonging and influencing through shared values, beliefs and behaviours, provides an important framework within which to potentially encourage physical activity.

Applying the social identity approach to exercise settings, the greater the self-identification with an exercise class (e.g., CrossFit or Zumba), the more likely members of the class will feel motivated to embrace the group's norms and values, and participate. In several studies by Beauchamp and colleagues (Beauchamp, Carron et al., 2007; Beauchamp et al., 2012; Dunlop & Beauchamp, 2011; 2013), the researchers found that in line with SCT and the comparative and normative fit principles, peoples' identification with an exercise group is dependent on some intra-group characteristics including that of age and gender, and in addition, greater identification can result in more participation. For example, in a survey by

Beauchamp, Carron et al. (2007), which surveyed adults between the ages of 30 to 91, participants were asked about how they felt about exercising with groups of younger, middle-aged and older adults, and participants stated that they preferred to exercise with people of a similar age. In another study, researchers randomly assigned older adult exercisers to one of three exercise groups (similar age-same gender, similar age-mixed gender and mixed age-mixed gender/control) and found that those groups which made age-based identity salient had better adherence rates than the control group (Beauchamp et al., 2012). Thus, the results suggest that age is an essential social comparison category when deciding whether or not to join an exercise group.

Further, another important category is that of gender, with a small number of studies finding that exercisers tend to prefer to exercise in same-sex as opposed to mixed-sex groups (Dunlop and Beauchamp, 2011). There is also some indication that superficial level similarities (i.e. age, gender) are more salient than deeper level similarities (i.e. attitudes and values) in terms of encouraging group cohesion and attendance (Dunlop & Beauchamp, 2011; Harrison et al., 1998). Recent activity programmes have harnessed salient social identities to promote greater physical activity, e.g. European Football Fans in Training, with some success (Wyke et al., 2019). In addition, the conceptual model of group cohesion in exercise settings also draws upon self-categorization theory (Carron & Spink, 1993), and there is some synergy between the two models in terms of the group environment and structure (i.e. around developing a sense of distinctiveness to promote a sense of "us"). However, the social identity approach goes further than this, providing a more comprehensive psychological explanation of how and why people join some groups and not others, suggesting that group cohesion and exercise participation is dependent more on the process of self-categorization with individuals identifying with other group members, resulting in shared identity and values (Beauchamp & O'Rourke, 2020).

Acknowledging the potential of group identity to promote well-being through encouraging group exercise and physical activity, more recently, a body of evidence has started to emerge which has considered the influence of group identity on outcomes such as adherence and participation in exercise and physical activity settings (Beauchamp et al., 2018; Stevens, Rees & Polman, 2019). For example, in a study by Stevens, Rees and Polman (2019), the researchers found that when people strongly identified as members of their physical activity groups, e.g., as park runners, they were more likely to continue to attend the group and had higher levels of exercise and lifestyle satisfaction, implying that they had internalised the group's identity and were conforming to the norms and values of the group.

In sum, the social cure literature suggests that the social identity approach can potentially promote behaviours around well-being, health, and exercise by harnessing and influencing group identities. Therefore, in considering this within structured exercise contexts, group exercise instructors could play an essential role in creating a sense of shared identity by applying the identity leadership model, which is the central focus of this thesis. Acknowledging this potential, identity leadership developed as an extension of the research around the social identity approach, and the next section will review the model and its four principles of leadership.

1.7 Identity Leadership and the Four Principles of Leadership

Within the social identity approach, leadership is seen as a dynamic group process between the leader and followers, which is enacted in the context of the leader and followers sharing group membership (Haslam, Reicher & Platow, 2020; Hogg, 2001; van Knippenberg, 2011). Shared group membership is the mechanism for effective leadership, in that an internalised group social identity reflecting the beliefs, values, and norms of a group allows those who embody the group prototype to emerge to lead and influence the group to achieve the desired outcomes and goals of the group, i.e., increased productivity (Hogg, 2001; Hogg

& Knippenberg, 2003, van Knippenberg, 2011). Further, as the leader embodies "who we are", the leader's influence is based on the perception that he is representative of what is normative in the group, and that there is no difference between a leader's self-interest and that of the group (Hogg, 2001; Hogg & Knippenberg, 2003; van Knippenberg, 2011).

Synthesising the previous identity leadership theory and research, Haslam, Reicher, and Platow (2020) developed the four principles of identity leadership, which require the leader to take the position of: (i) "in-group prototype"; (ii) "in-group champion"; (iii) "entrepreneur of identity" and (iv) "embedder of identity". Viewed as essential in providing effective leadership, identity leadership involves influencing follower behaviour, beliefs, and attitudes through creating, advancing, shaping, and embedding a shared sense of group identity. A comprehensive literature supports these contentions across a range of settings, including organisations (Krug et al., 2021, 2021; Steffens et al., 2014, 2018; Zhu et al., 2015), politics (Reicher et al., 2005; Reicher & Hopkins, 1996), sport (for reviews see Haslam, Fransen & Boen, 2020; Rees et al., 2015; Stevens, Rees & Cruwys, 2021) and more recently there has been some interest in considering identity leadership within physical activity and exercise environments (Fransen et al., 2022; Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022). In terms of the latter, although some progress has been made, the available correlational and experimental studies have not directly focused on well-being and tend to concentrate on one of the four principles (i.e. entrepreneurship), suggesting that further studies are needed to understand the potential role of identity leadership within structured exercise contexts.

The following section will discuss the four principles of identity in more detail and how they could be applied to structured group exercise.

1.7.1 Prototypicality: Leaders as in-group prototype

Research has shown that when a leader is perceived as a member of the in-group and prototypical, or representative of the social identity of the group, the leader will be seen as "one of us" and then be in a position to motivate and mobilise group members to achieve objectives that are important to the group (for reviews see Barreto & Hogg, 2017; Steffens et al., 2020). This core principle of identity leadership has received a considerable amount of attention in the research literature, and several reviews have summarised how prototypicality is related to various leadership outcomes primarily within organizational settings (Barreto & Hogg, 2017; Platow et al., 2015; Steffens et al., 2015). Leaders viewed as group prototypical receive more support (Platow & van Knippenberg, 2001; Ullrich et al., 2009;) and are perceived as more effective (Giessner, van Knippenberg & Sleebos, 2008; van Knippenberg & van Knippenberg, 2005), fairer (De Cremer, van Dijke & Mayer, 2010; van Dijke & De Cremer, 2008), trustworthy (Giessner & Knippenberg, 2008; van Knippenberg, 2011), and charismatic (Platow et al., 2010; Steffens, Haslam & Reicher, 2014). Also, studies have shown that prototypical leaders are perceived as more effective, even after failing to achieve a significant goal, compared to non-prototypical leaders (Giessner & van Knippenberg, 2008). In addition, evidence suggests that the relationship between leader group prototypicality and outcomes is stronger when prototypicality is viewed in aspirational terms (i.e., as the ideal representation) instead of an average group representation (Steffens et al., 2020). Furthermore, leader prototypicality influences group members' performance (van Knippenberg & van Knippenberg, 2005), job satisfaction (Cicero et al., 2007), turnover (Cicero et al., 2010; Pierro et al., 2005) and effort (Cicero et al., 2008). In the latter study, researchers identified that for those individuals who strongly identified with the team, their perception of leader group prototypicality positively influenced their work effort.

These types of outcomes could equally apply to group exercise settings when considering that encouraging effort is a crucial element of exercise and physical activity (Lee et al., 2002; Steele et al., 2017) and acknowledging that adherence to exercise programmes is poor, with high drop out rates (Bruner & Spink, 2011). Therefore, a leader perceived as prototypical could potentially play a part in influencing the effort and adherence of group exercisers. Nevertheless, although the available experimental studies based within organisational settings suggest that the effectiveness of leaders is reliant on follower perceptions' of their prototypicality and the need for leaders to embody what it means to be a member of the group (Steffens et al., 2020), there is less understanding of this principle within group exercise contexts and what it means for a group exercise instructor to be prototypical. However, there is a suggestion that a prototypical leader must demonstrate the behaviours, qualities, and values shared with group members, differentiating the group from other groups (Haslam, Reicher & Platow, 2020; Haslam & Reicher, 2007). As shown by the stance taken by DM in the BBC prison study (Haslam & Reicher, 2007), this implies that an exercise instructor would need to spend time integrating themselves into an exercise group, observing and interacting with the group, developing relationships and attempting to begin to understand the group members' values, to promote a greater sense of shared group identity.

Further, in some discussion papers by Slater et al. (2014, 2016), some parallels are made between developing prototypicality and humanistic therapeutic approaches, which emphasise the therapist providing the core conditions of genuineness, empathy, and taking a non-judgemental stance when attempting to understand and connect with individuals or groups. In practice, this humanistic stance requires using a range of different skills, including active listening and asking open questions (Rogers, 1980). Indeed, studies have indicated how high levels of relational identification with the leader reflect the perception of a shared group identity (Slater et al., 2018, 2019). Therefore, to develop prototypicality, group

exercise instructors could look to develop and utilise their interpersonal skills. Further, in line with the SCT's comparative fit principle, for the instructor to be perceived as representative of the group and an "in-group" member, behavioural norms may need to be adopted, for instance, to appear more like members of the groups (i.e., to wear more casual fitness wear with a group of over-weight men and to use similar language).

1.7.2 Advancement: Leaders as in-group champions

The second principle of identity leadership proposes that effective leaders must be seen as "doing it for us" and to put the interests of the group first, before the interests of themselves and other groups. In other words, to influence the group, the leader must advance the group's interests by standing *for* and standing *up* for the group (Haslam, Reicher & Platow, 2020; Haslam & Reicher, 2007). There is a substantial body of research that focuses on the concept of fairness, which encapsulates this second principle and stresses the notion that leaders must look to reinforce the distinctiveness of the group they are leading through their behaviours (Duck & Fielding, 2003; Haslam & Platow, 2001; Platow et al., 1997; Platow et al., 2014). Platow and colleagues (1997) conducted a series of experimental studies in which they considered fair and unfair leaders in interpersonal and intergroup situations. In several of these experiments, findings indicated that fair leaders received stronger endorsements than unfair leaders within interpersonal contexts; however, the results were reversed when based on intergroup contexts. For example, when pre-existing group memberships were employed (i.e. New Zealanders as the 'ingroup' and the 'recent immigrants' as the 'outgroup'), those who highly identified with the ingroup found that the endorsement of a CEO's leadership varied according to the leader's distributive behaviour and the social context. In both the interpersonal and low degree of inter-group identity conditions, fair leaders received stronger endorsements than unfair leaders. However, in the

high degree of inter-group identity condition, in which participants strongly identified with being a New Zealander, 'unfair' leaders who favoured the ingroup were more strongly endorsed than fair leaders. Therefore, the results of these studies highlight that the meaning of fairness changes according to the interpersonal and intergroup context and also that when a leader is seen as fair, group members will align their opinions and attitudes to those of the leader, indicating how leaders can potentially influence the attitudes of group members (Platow et al. 1997).

As discussed by Haslam, Reicher, and Platow (2020), whether a leader's actions are perceived as fair or unfair depends upon whether the leader is seen to advance the interest of the most salient group identity. There is an expectation that a leader will support and promote the group interest in a way that is appropriate and fits the situational context (Duck & Fielding, 1999; Haslam & Platow, 2001; Haslam, Reicher & Platow, 2020; Jetten et al., 2002). Further, a leader who is seen to put the group first and promotes the group's interest is endorsed by the group and then can influence the opinions of group members and motivate them to follow the leader's vision (Haslam, Reicher & Platow, 2020; Platow et al. 2000). An example of this is found in another study by Platow et al., (2000), in which leaders were able to influence the choices of participants in a painting task if they were perceived as being fair to ingroup members and shown to favour the in-group members over out-group members. In other words, to influence followers, leaders must show that they are 'doing it for them'.

Additionally, although the literature shows that effective leaders need to show fairness to ingroup members and unfairness between groups, this also depends on the norms and values of the group in question. For instance, in the context of the 2000 Olympics, Platow et al. (2014) surveyed Australians to ascertain whether they supported leaders who favoured the in-group, or leaders who treated both groups equally and found that they supported the 'fair' leader who treated people equally regardless of the group; therefore, this reflects that in the

context of the Olympics, the 'in-group' valued fairness. The results of this study indicate that before a leader can successfully promote the group interest, leaders must understand the group they are leading in terms of the norms and values held as part of the group's social identity. Using an exercise example, an exercise leader who is appointed to lead a women's weight training group and has a clear understanding of the norms and values of group members (e.g., to increase fitness in a supportive environment and to socialise with others), will be in a position to promote the interests of the group. In doing so, the exercise leader as an in-group champion would ensure that the group is treated fairly at an interpersonal and inter-group level (i.e., ensuring that other exercise groups do not impinge on the group's class time and that group classes are not interrupted) and emphasises the uniqueness of the group (or 'ingroup') compared to other groups, which will result in endorsement and the potential for the exercise leader to influence group members in improving their mental well-being and physical health.

1.7.3 Entrepreneurship: Leaders as entrepreneurs of identity

The third principle of identity leadership acknowledges that leadership is a proactive process within which would-be leaders actively shape the social context and group prototype to construct a sense of "us". Once constructed, this allows the leader's objectives and proposals to match the beliefs and values of the group, thereby enabling the leader to influence group members. Therefore, leaders are described as entrepreneurs of identity (Haslam, Reicher & Platow, 2020).

Empirical evidence for this principle includes the seminal BBC Prison Study experiment (Haslam & Reicher, 2007; Reicher & Haslam, 2006), in which fifteen adult men were randomly assigned as prisoners or guards in a simulated prison setting. On day five of the study, a trade unionist, DM, was introduced as a prisoner who had the vision to replace

the existing social system of antagonism between prisoners and guards, with one of cooperation between the two groups. The trade unionist encouraged prisoners to see themselves as members of a collective group and in terms of new categories (e.g., suggesting to the prisoners that their prison garb looked like uniforms of local government employees and using an analogy of workers united against managers and driven by a Health and Safety issue apparent in the experiment). Further, DM, after developing what "we" look like, the trade unionist then created a sense of shared social identity through the use of language and "we-ness", referring to the prisoners and guards as "we", i.e. "we should all have a forum that meets once a day between us, all of us" (Haslam & Reicher, 2007, p. 136).

This use of language by leaders as entrepreneurs of identity to create and shape a shared social identity has been well documented in a variety of studies within organizational and political settings (Weiss et al., 2018; Steffens & Haslam, 2013; Fladerer et al., 2021). For example, Fladerer et al. (2021) analysed the use of the words we- and I- referencing language within the CEO letters to stakeholders in the Annual Reports of companies listed on the German stock exchange. The analysis found a positive relationship between CEOs using more we-referencing language and the key indicators of company performance and that the use of I-referenced language was unrelated to performance. These results suggest that a CEO's thinking and acting collectively can potentially shape a shared social identity for organizational members. Similarly, in a sporting context, Slater et al. (2015) analysed the media data of various sports leaders, including those from cycling, rowing and swimming, during the 2012 Olympic games. The analysis from the study suggests that those who led teams which exceeded medal expectations (i.e., rowing, cycling) used group-oriented "we" and "us" language, as opposed to less successful team leaders who appeared to use the language of "I" and "me" (i.e., swimming).

With leader entrepreneurship encouraging group cohesion and shared group identity, this principle could provide more insight into how leaders can influence formal exercise groups, and a couple of studies pertinent to this thesis have considered the impact of a leader's entrepreneurship on health and exercise. For example, in a survey by Steffens et al. (2018), researchers examined the association between leadership and employee health by considering the lagged effects of leader identity entrepreneurship (creating a sense of "we and "us") on team members' burnout, work engagement and turnover intentions over a 10-month period. In the findings of this cross-sectional study, the researchers found that employee perceptions of leader entrepreneurship predicted higher levels of work engagement and lower levels of burnout and turnover intentions. Thus, the results suggest that the leader creating a sense of cohesion and group identity can positively influence employees' health. Further, an experimental study by Stevens, Rees, Steffens et al., (2019) examined the impact of leader entrepreneurship on the effort and performance of participants during 5k cycling time trials. Using a pre-post between-subjects experimental design, participants were randomly allocated to either a high or low-identity entrepreneurship condition group. In the high identity entrepreneurship condition, the leader used 'we-referencing' language to stress the group identity and created a team name for the group. In contrast, the leader of the low identity entrepreneurship condition group stressed that the time trial was an individual rather than a group endeavour. Results showed that, compared to the low identity entrepreneurship condition, those in the high identity entrepreneurship condition maintained greater effort and showed improved performance, thereby providing causal evidence that leaders who create a shared identity amongst group members through the use of "we" language, can potentially influence effort and performance within an exercise setting.

1.7.4 Impresarioship: Leaders as embedders of identity

Once a leader has created a social identity for the group and there is a sense of "who we are", and "our" future, and "who we want to be", the leader then needs to embed this into reality by putting the shared vision of the leader and followers into practice. According to Haslam, Reicher & Platow (2020), this embedding process potentially involves leaders being artists, impresarios, and engineers of social identity. With leaders as artists of identity, the focus is on leaders combining language, e.g., literary devices, non-verbal communication, and cultural knowledge to encapsulate the "true nature" of the group and create a vision of social identity. Leaders as impresarios of identity mobilize social identity through structuring the actions of the group, including holding meetings and rituals ceremonies, to reflect the norms of the group's social identity; therefore, leaders as engineers of social identity not only envisage the group and its future but also provide structures to realise and substantiate the norms, values and beliefs of the group (Haslam, Reicher & Platow, 2020).

Research has indicated that embedders of identity look to achieve a collective vision/goal that fits with group values (Reicher et al., 2005; Reicher & Haslam, 2006;). An example of this can be found in the experimental BBC prison study mentioned previously (Haslam & Reicher, 2007; Reicher & Haslam, 2006), in which the trade unionist prisoner DM crafted a sense of a new shared group identity based on workers' struggle for enhanced conditions using language and analogies, as well as providing a vision of a new cooperative system (with the prisoners and guards working together against the producers of the programme). More importantly, DM also provided a clear structure as to how they could realise his vision, suggesting a forum where guards and prisoners could meet and cooperate. This suggestion reflects an attempt to practically translate his vision, with the proposed structure embodying the group's shared social identity (Reicher et al., 2005). Thus, it is not

enough for leaders to create and discuss a shared social identity and realities; they must also be able to bridge the reality gap.

Similarly, in sports settings, research suggests that leaders are viewed as embedding shared social identities when leaders plan and deliver structures that reflect both the leader's vision and shared group values (Boen et al., 2008; Evans et al., 2021; Slater et al., 2015). For example, in their analysis of the British Cycling leadership in the 2012 Olympics, Slater et al. (2015) argue that Sir David Brailsford embedded the team's values around performance and marginal gains in practice by investing in research and developing innovative equipment and practices. Further, in two experimental studies which compared responses to coach leaders who embedded social identities compared to those who did not, researchers found that group members' perceptions of leader trust, influence, and intentional mobilisation were higher for leaders who embedded social identities in practice (Evans et al., 2021). No studies specifically focus on leaders as embedders of identity within exercise environments. However, within formal exercise groups, leaders embedding identity potentially would be looking to develop class programmes and exercises that fit both the values and goals of the group, as well as their vision as an instructor (e.g., combining the instructor's vision of increased effort with strength exercises when the values are around goals of getting stronger, or opportunities to exercise in pairs where there are values around making friends and connections with others).

In sum, evidence has supported the influence of the four identity leadership principles on effective leadership, indicating that it can influence a range of follower behaviours and beliefs; however, there are limitations. With most studies primarily focused on a leader being prototypical or the "in-group prototype" (Steffens et al., 2020), fewer studies consider the other principles, which is a criticism of the approach (Hou et al., 2021). Also, only a few studies have tested the principles in sporting contexts, and only one experimental study has

considered leaders as entrepreneurs within a physical activity or exercise context. In addition, the researcher is aware of only one study that attempts to manipulate all four principles within an experimental design focusing on coach leadership (Miller et al., 2021). Therefore, more studies manipulating all principles would help to further develop the model and our understanding of the individual principles within different contexts. Additionally, in agreement with Stevens, Rees and Cruwys (2021), it is evident that more research is needed within sports and exercise settings to experimentally manipulate identity leadership, using more creative methodologies such as vignettes. Chapter 3 (Study 2) of this thesis attempts to manipulate all four principles using an experimental vignette methodology within a group exercise setting.

With the four principles suggesting that the leader can influence behaviour by promoting group identity, the next section will consider the potential of identity leadership to promote desired exercise and physical activity outcomes.

1.8 Identity Leadership and Effort

Within the realm of exercise and physical activity, there is growing recognition that there needs to be a greater focus on effort when promoting activity to improve health (Lee et al., 2002; Steele et al., 2017). There is some discussion around the importance of the mobilisation of effort (or effort mobilisation) in the exercise literature in relation to intensity, the impact of affect (Silvestrini & Gendolla, 2019), and its role in healthy ageing (Hess et al., 2021). However, the group exercise instructor's role in mobilising effort (i.e., to encourage effort in an exercise class) and the processes around this have not been considered in any great depth. Several studies in the wider literature suggest that identity leadership can influence followers' actual and intended efforts. For instance, studies within organisational psychology have stressed the role of identity leadership in crafting cohesive group identities, which promotes follower effort when completing collective tasks and goals (Cicero et al.,

2008). This finding has also been found in a small number of studies within sporting contexts (Fransen et al., 2015; Miller et al., 2021; Slater & Barker, 2019; Slater et al., 2018, 2019). For instance, in a longitudinal 2-year intervention study, Slater and Barker (2019) found that increased perceptions of identity leadership and group identity improved athletes' mobilisation of effort (i.e., intention to exert effort during training sessions). In an experimental study, researchers found that when a leader and a group of athletes shared an identity (vs. not sharing an identity), participants were more willing to invest time in a task, and this increased mobilisation mediated the relationship between shared identity and performance on a lab-based task (Slater et al., 2019). A few studies have found positive associations between perceived identity leadership, effort and adherence in exercise environments (Steffens et al., 2019; Stevens, White et al., 2022). In a study by Steffens et al. (2019), based in a fitness class setting, an association was found between identity leadership and perceived levels of effort reported by participants (giving a rating of between 0 and 100%), which was mediated by the exercisers' identification with the group and how comfortable the exercisers felt within the group environment. Although these studies have provided a valuable addition to the literature, this limited evidence base and the acknowledged importance of encouraging effort indicate a need for further research. Specifically, there needs to be a focus on further understanding any associations between the mobilisation of effort, identity leadership, mental well-being and physical health, which forms the basis of the mediation analysis in Chapter 2 (Study 1) of this thesis.

1.9 Identity Leadership, Well-being and Health

Despite the large body of exercise psychology literature indicating that exercise and physical activity can positively impact well-being and mental health (White et al., 2017) and the research suggesting perceptions of positive affect and well-being encourages exercise

adherence (Ekkekakis et al, 2011), there has not yet been a direct focus on identity leadership and exercisers' mental well-being and physical health, arguably the goal of increasing exercise and physical activity. There is a clear indication across both the general and identity leadership organizational literature that leaders can have a positive (or negative) influence on the well-being and health of their employees (Harms et al., 2017; Krug et al., 2020, 2021; Steffens et al., 2018). Within the identity leadership sphere, previous studies have identified that being led by a self-sacrificing leader who puts the group first, together with strong perceptions of a group's identity, results in followers reporting higher levels of self-esteem (De Cremer et al., 2006), an essential element of well-being. In a study by Krug et al., 2021 considering well-being at work during COVID-19, the researchers found that leadership practices that encouraged a sense of "we-ness" improved perceptions of well-being. There has also been some indication that identity leadership can influence health and well-being in professional sporting settings (Fransen et al., 2019; Mertens et al., 2020, 2021), with Fransen et al. (2019) identifying that the leaders' ability to create a sense of shared social identity influenced both perceptions of improved health in both the team members and leaders. Thus, initial evidence suggests that identity leadership may affect followers' mental well-being and physical health, which has not been extensively considered within the exercise and physical activity domain. Therefore Chapter 2 (Study 1) of this thesis will consider the potential influence of identity leadership on the perceptions of mental well-being and physical health of group exercise members. The potential of identity leadership to influence some aspects of well-being has also been evidenced in recent research conducted in different exercise environments (Fransen et al., 2022; Stevens, White et al., 2022). However, the research in Chapter 2 (Study 1) goes beyond this evidence in that it considers how both group identity and mobilisation of effort mediate the relationship between identity leadership, mental well-being and physical health.

1.10 Applying Identity Leadership: The 5Rs

Despite the depth and breadth of the identity leadership literature, most research has predominantly revolved around experimental and cross-sectional studies, resulting in calls to provide more clarity around how to apply identity leadership in practice. In response to this call, Haslam, Reicher, and Platow (2020) developed the 3Rs/5Rs identity leadership programme, which aims to apply the four principles. Extending the earlier 3Rs, the 5Rs programme consists of five steps which require the leader to: introduce the model (i.e., readying); understand the social identities of the group (i.e., reflect); act in line with the group's expectations (i.e., represent); help create structures to achieve group goals (i.e., realize); and to monitor progress towards group goals (i.e., reporting). Further, a 5Rs shared leadership programme has been developed, which identifies multiple leaders across the critical roles of task, motivational, social, and external leader (Fransen et al., 2020, 2022; Mertens et al., 2020, 2021). Initially applied to organisational settings (Haslam et al., 2017), the 3Rs/5Rs of identity leadership programmes have been utilised successfully in sporting environments (Fransen et al., 2020; Mertens et al., 2020, 2021; Slater & Barker, 2019). Consisting of a series of workshops, these programmes cover the various steps of the model, and all include a social mapping exercise (Cruwys et al., 2016) in which participants consider group membership and values as part of the reflection stage. In addition, more recently, the 5Rs shared identity leadership model has been applied to a peer walking group for older adults (Fransen et al., 2022). From this application of the shared model, the researchers found that implementation was possible in this setting and that the programme promoted more cohesion and increased walking activity compared to a control group. However, despite these developments, to date, the original 5Rs approach has not been applied to structured group exercise in which an appointed exercise instructor leads group exercisers. Therefore, Chapter 4 (Study 3) of this thesis will apply the model to structured group exercise settings

and considers its impact on group identity, mobilisation of effort, mental well-being, and physical health. As the study focuses on community exercise groups with appointed exercise leaders, the intervention programme will apply the original 5Rs model. In doing so, the study draws upon the work of Slater and Barker (2019), who applied an identity leadership intervention with an elite disability football team, providing an example of applying the model to a physical activity setting with a pre-existing leadership structure.

1.11 Summary

In summary, identity leadership provides a significant addition to the literature, basing its approach on social psychological principles. Emphasising leadership as a dynamic group process between the leader and followers, identity leadership is enacted through shared group identity, in which the leader helps to create, advance, shape, and embed using the four principles of identity leadership. Having established a shared group identity, an effective identity leader can influence follower behaviour, beliefs, and attitudes. This approach has primarily been applied in organisational and sporting settings based on a large body of research and a robust theoretical background. Findings indicate that identity leadership has the potential to influence a range of behaviours and attitudes, including well-being (Steffens et al., 2018) and performance (Ellemers et al., 2004). It is also evident that recently there has also been some welcome consideration of how identity leadership may influence those involved in exercise and physical activity (Rowe & Slater, 2021; Fransen et al., 2022; Steffens et al., 2019; Stevens et al., 2018; Stevens, Rees, Coffee et al., 2020; Stevens, White et al., 2022). However, despite this, more research is needed in this domain. In general, from critically reviewing the identity leadership literature, there needs to be more emphasis on attempting further to understand the relationships between identity leadership and various outcomes, to test all four principles (as opposed to focusing solely on prototypicality or

entrepreneurship), and to apply the 5Rs in practice within exercise settings. Therefore, this thesis provides an original contribution to the literature in five ways:

Firstly, overall although there has been some progress in applying identity leadership to exercise/physical exercise contexts, research is limited and focuses on exercise outcomes such as adherence or comfort (Rowe et al., 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022). From the organizational and sports literature, it seems that leaders can have a positive (or negative) influence on the well-being and health of followers and also that both group identity (Greenaway et al., 2015, 2016) and effort (Steele et al., 2017) are critical for well-being and health. Accordingly, this thesis provides an original contribution to the literature by examining the relationships between identity leadership, mental well-being, and physical health and the extent to which group identity and mobilisation of effort may mediate these relationships.

Secondly, going beyond associations and considering the processes involved in developing identity leadership, it is suggested that identity leadership consists of applying all four principles of prototypicality, advancement, entrepreneurship, and impresarioship (Haslam, Reicher & Platow, 2020). Various studies have considered these principles; however, existing research revolves around reviewing or testing the principles in isolation (especially those of prototypicality and entrepreneurship) as opposed to all the principles (Fladerer et al., 2021). Further, only one experimental study exists in a physical activity context, which considers the impact of entrepreneurship (Stevens, Rees, Steffens et al., 2019). Therefore, this thesis provides an original contribution to the literature by operationalising all four principles and experimentally testing the extent to which leaders engaging (vs. not) engaging in the four principles of identity leadership influences the group identity, levels of mobilisation of effort, positive/negative affect and the intention to return of exercisers and non-exercisers.

Thirdly, in response to "how" to apply identity leadership in practice, the 3Rs/5Rs leadership programmes were developed based on the four principles (Haslam, Reicher & Platow, 2020). Although there have been some attempts to apply these in organisational (Haslam et al., 2017) and sporting settings (Mertens et al., 2020, 2021; Slater & Barker, 2019), and there has been a recent attempt to utilise the shared 5Rs programme in a community walking group (Fransen et al., 2022), the research is limited. Accordingly, this thesis provides an original contribution to the literature by developing and testing the original 5Rs of identity leadership with group exercise instructors in structured group exercise settings and considering the impact of this on the desirable outcomes of mobilisation of effort, mental well-being, physical health, and fitness levels.

Fourthly, although the current review utilised a quantitative approach due to the established body of knowledge and research, the research applies some novel research methodologies, some of which have been discussed in the literature as ways of furthering our understanding of identity leadership (Stevens, Rees & Cruwys, 2021). Accordingly, the research provides an original contribution to knowledge by including an original EVM quasi-experimental design (Aguinis & Bradley, 2014) and an online delivery of the 5Rs to exercise instructors leading structured exercise groups, which was necessitated by COVID-19.

Finally, reviewing the exercise psychology literature, despite an indication that the leadership of instructors may potentially impact exercise outcomes (i.e., adherence) in structured group exercise settings (Ntoumanis et al., 2017), studies of leadership in this context are sparse, and in general tend not to be underpinned by leadership theory, providing mixed results. Therefore, this research extends and brings originality to the exercise psychology literature by applying identity leadership theory and its approach to structured group exercise settings across three different studies.

1.12 Aims

This thesis aims to build on previous research within the identity leadership and exercise literature in several ways by: (i) examining the relationships (and underpinning mediational associations) between the perceptions of identity leadership and mobilisation of effort, mental well-being, and physical health of group exercisers; (ii) examining the effect of the four principles of identity leadership on group identity mobilisation of effort, well-being, and intention to return in an experimental study, comparing both exercisers and non-exercisers; and (iii) extending the practical application of identity leadership by developing and applying a 5R's identity leadership intervention within structured group exercise settings. Specifically, this thesis will:

1) Explore the relationships between identity leadership, mental well-being, and physical health, together with the mediating roles of group identity and mobilisation in group exercisers (Chapter 2; Study 1).

2) Examine the potential impact of applying the four principles of identity leadership (vs. not) on the group identity, mobilisation of effort, positive/negative affect, and intention to return of exercisers and non-exercisers (Chapter 3; Study 2).

3) Develop and apply a 5R's identity leadership intervention within a structured group exercise context, training group exercise instructors to apply the model when leading exercise groups and testing the effectiveness of the intervention by considering its impact on group exercisers' group identity, mobilisation of effort, mental well-being, physical health and fitness levels (Chapter 4; Study 3).

CHAPTER 2: EXERCISE INSTRUCTORS' IDENTITY LEADERSHIP BEHAVIOURS ARE ASSOCIATED WITH EXERCISERS' MENTAL WELL-BEING AND PHYSICAL HEALTH: THE MEDIATING ROLES OF GROUP IDENTITY AND MOBILISATION OF EFFORT

2.1 Introduction

Despite the known physiological and psychological benefits of physical activity, it is estimated that over a quarter of all adults worldwide (27.5%) fail to meet the World Health Organisation's (WHO) recommendations (i.e., at least 150 minutes of moderate intensity, or 75 minutes of vigorous-intensity activity per week; Guthold et al., 2018). With inactivity (defined by the WHO as failure to achieve their recommendations), also linked to increasing mental health problems and non-communicable diseases, such as diabetes and coronary heart disease, these health consequences are costly on many levels (Das & Horton, 2012). For example, such conditions place a considerable economic burden on health services, and a recent analysis suggested that physical inactivity produced a direct cost of around 53.8 billion dollars worldwide (Ding et al., 2016). In response, participating WHO member states have agreed to attempt to reduce inactivity by 10% in their respective populations by the year 2025, and various public health campaigns have been introduced to encourage the general public to increase their physical activity levels (e.g., Change4Life, One You, in the UK). However, as the global prevalence of physical inactivity remains high and there is some indication that levels are rising in high-income countries (Guthold et al., 2018), such campaigns appear to have limited efficacy. Accordingly, research that informs practical recommendations is crucial to increase our understanding of the determinants of physical activity behaviours and to develop interventions to stem the tide of inactivity and enhance levels of health and well-being.

Existing physical activity literature predominantly revolves around individual determinants of participation and barriers to physical activity (e.g., Withall et al., 2011).

Consequently, physical activity and exercise programmes are typically developed using theories of individual personality, motivation, and behaviour change, and while some of these theories explicitly include social factors (e.g., self-determination theory; Silva et al., 2010), they do not place, front and centre, the importance of group processes and social context, which could enhance programme effectiveness (Grant et al., 2015; Loughead et al., 2001). Further, the individualistic focus of these programmes is surprising considering the recognition that physical activity may be more effective in group settings (see Burke et al., 2006) and the role that a range of social factors, including social influence (Carron et al., 1996), group cohesion (Estabrooks & Carron, 1999), social support (Resnick et al., 2002) and leadership (Ntoumanis et al., 2017), play in an individual's engagement with physical activity. Regarding leadership, a small number of studies have identified that exercisers' positive perceptions of exercise instructors (e.g., their professionalism) are associated with improved adherence (Killingback et al., 2017), self-efficacy (Beauchamp, Welch & Hulley, 2007), and enjoyment and intention to exercise (Bray et al., 2005). Although these findings are promising, as with group exercise in general, we have a limited understanding of the mechanisms that underlie these relationships or the long-term effects on behavior (Estabrooks et al., 2012).

Recently, researchers have sought to consider the importance of social factors, particularly the social identity paradigm, to explain exercise-related behaviour. Based on self-categorisation (Turner, 2010) and social identity (Tajfel & Turner, 1979) theories, scholars have proposed that shared group identities and group membership play an essential role in the promotion of positive functional beliefs and behaviours (see Haslam et al., 2009) in areas such as healthy eating (Tarrant et al., 2017) and ageing (Gleibs et al., 2010). Indeed, within physical activity research, studies have identified that a strong sense of group identity with an exercise group can encourage adherence (Beauchamp et al., 2018; Grant et al., 2015; Stevens,

Reece & Polman, 2019). Also, more broadly, positive group memberships appear to provide a 'social cure' and positively impact an individual's overall well-being (Greenaway et al., 2015, 2016) and physical health (Haslam et al., 2018; Sani et al., 2015). Therefore, harnessing group membership and social identity highlights an important potential factor in the quest to improve levels of inactivity, mental well-being, and physical health.

As discussed in Chapter 1 of this thesis, as an extension of the social identity literature, the identity leadership approach potentially provides the mechanism for encouraging group identity and promoting change. Viewing leadership as a dynamic process between the leader and followers (Haslam & Platow, 2001; Hogg, 2001), there is a large body of evidence to suggest that once in place, effective identity leadership through the application of the four principles, has the potential to positively influence a range of follower behaviours and beliefs across different groups (i.e., business organisations and sports teams) well-being (Steffens et al., 2017, 2018) and performance (Zhu et al., 2015). More recently, the approach has been extended into sport and exercise psychology (for reviews, see Haslam, Fransen & Boen, 2020; Rees et al., 2015; Stevens, Rees & Cruwys, 2021), and empirical examinations have been conducted. Within physical activity and exercise settings, a handful of studies indicate positive relationships between identity leadership, group identity and the outcome of adherence (Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018;Stevens, White et al., 2022). To illustrate, two of these studies have attempted to identify the mechanisms that underpin the relationship between identity leadership and adherence to exercise using mediation analysis, and both indicated that group identity mediated this relationship (Steffens et al., 2019; Stevens et al., 2018).

Despite the initial application of an identity leadership approach to exercise and physical activity contexts and providing some interesting findings, knowledge is limited. There has not yet been a focus on identity leadership and exercisers' well-being in terms of

mental well-being and physical health, arguably the ultimate goal of increasing physical activity, together with any processes that may underpin these relationships. In considering these processes, there is growing recognition that there needs to be a greater emphasis on effort when promoting and encouraging activity to improve health (Lee et al., 2002; Steele et al., 2017), and there is some discussion in the exercise literature around the importance of mobilizing effort to promote physical activity (Hess et al., 2021). Again, a small number of identity leadership studies to date have focused on effort as an outcome within exercise and physical activity environments (Fransen et al., 2022; Steffens et al., 2019; Stevens, White et al., 2022); however, none have considered how the mobilisation of effort (together with group identity), may mediate any relationships between identity leadership and well-being, suggesting that further studies are needed.

2.1.1 The Current Research and Hypotheses

Chapter 2 (Study 1) extends both the identity leadership and physical activity/exercise literature and explores the proposition that exercise instructors' identity leadership can shape and influence exercisers' sense of group identity, mobilisation of effort, mental well-being, and physical health. Building upon recent findings (Rowe et al., 2021; Steffens et al., 2019; Stevens, et al., 2018; Stevens, White et al., 2022), this correlational study looks to examine the associations between group exercise instructors' engagement in identity leadership and their followers: (1) group identity; (2) mobilisation of effort; (3) mental well-being; and (4) physical health. Further, recognising the importance of mediation analysis in group physical activity research (Estabrooks et al., 2012), this study addresses the first aim of this thesis; extending the literature by examining the processes underlying any relationships between identity leadership and mental well-being and physical health, via group identity and mobilisation of effort. Furthermore, acknowledging the importance of group membership for

well-being and health (Jetten et al., 2017), together with the role of identity leadership in developing a sense of "us" (Haslam, Reicher & Platow, 2020) and motivating and promoting effort (Slater & Barker, 2019; Steffens et al., 2019; Stevens, Rees, Steffens et al., 2019; Stevens, White et al., 2022), we expected that there would be a positive association between identity leadership and group exercisers' perceptions of group identity, which in turn would encourage greater mobilisation of effort, resulting in higher levels of mental well-being and physical health. Thus, drawing together these areas of consideration, it is hypothesised that:

- There will be a positive relationship between perceptions of an exercise instructor providing identity leadership and exercisers' group identity (H1a), mobilisation of effort (H1b), mental well-being (H1c), and physical health (H1d)

- Beyond group identity, perceptions of an exercise instructor providing identity leadership will account for additional variance in group exercisers' perceptions of mobilisation of effort (H2a), mental well-being (H2b), and physical health (H2c).

- The relationship between identity leadership and: (1) mental well-being (H3a); and (2) physical health (H3b) will be atemporally serially mediated by group identity and mobilisation of effort.

2.2 Method

2.2.1 Participants and Design

The study recruited two-hundred and forty-three participants (M_{age} = 30.48; SD = 11.40), all currently participating in group exercise activity. Overall, 68% of participants (n = 165) were members of gym-based classes or activities (e.g., spinning), and 32% of participants (n = 78) belonged to other physical activity groups (e.g., running groups). Beyond this classification level, it proved difficult to categorise these groups further, with participants reporting membership of forty-six groups in total (n = 29 gym-based classes and

activities and n = 17 in other physical activity groups). The highest reported group memberships were found in the gym-based classes of yoga (n = 40) and spinning (n = 23), and the lowest reported group memberships in both the gym-based (n = 1, Tai ' chi) and other physical activity (n = 1, baseball) groups. Group membership averaged 30.60 months (SD = 46.7), and the average weekly exercise time was 5.45 hours (SD = 4.51). In line with some of the previous identity leadership research in exercise settings (e.g., Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022), the study utilised a cross-sectional design.

Monte Carlo estimations via the MARlab application (Schoemann et al., 2017) were conducted to determine an adequate sample size of exercisers in instructor-led group exercise. For paths a^1, a^2, and d^{21}, the effect of identity leadership (X) on social identity (M1) and mobilisation (M2), as reported by Stevens and colleagues (2018) within exercise groups, were used (i.e., anticipated minimum of a moderate relationship). For paths b^1, b^2, and c', estimations are based on previous associations between identity parameters and mental health (Haslam et al., 2019); from this, a minimum of a small to medium association was anticipated (Haslam et al., 2019; Thoemmes et al., 2010). In line with previous studies (Stevens et al., 2019), alpha was set at .05, and 5000 replications were conducted; from this, sample size estimates for the mediated paths indicated at least 224 participants to achieve a power of .80 (a^1b^1 N = 226, a^2b^2 N = 224, $a^1d^{21}b^2$ N = 224).

2.2.2 Procedure

Following ethical approval by a UK University, study information, a formal consent form, and the questionnaire items were placed on Qualtrics (online survey software) and advertised on social media (e.g., on Facebook and Twitter). The study was also promoted through local gyms and exercise groups by the first author contacting exercise leaders and

gym managers, who then distributed the Qualtrics link to their members or allowed the researcher to recruit through their Facebook, Twitter, and website forums. After giving informed consent and completing demographic information, participants were asked to consider the exercise group they currently attend (or the group they attend the most if they attended multiple groups) and then to respond to the questionnaire items.

2.2.3 Measures

2.2.3.1 Group Identity

Participants were asked to complete a 3-item group identity measure, assessing the extent to which participants identified and felt connected to their exercise group. This measure was chosen partly for brevity, and due to it being used to measure group identity in various previous studies (cf. Haslam, 2004; Miller et al., 2021; Slater et al., 2018, 2019). Participants were asked the extent to which: (1) "you feel a strong connection with the group,"; (2) "you identify strongly with the group,"; and (3) "you feel no connection with the group" (reverse scored) and to consider each item and to rate on a Likert scale, for example, from 1 (*I do not agree at all*) to 7 (*I agree completely*). A Cronbach alpha $\alpha = .80$ indicated that the scale had good internal consistency, which corresponded with previous studies ($\alpha = .81$, Slater et al., 2018; $\alpha \geq .83$, Miller et al., 2021).

2.2.3.2 Identity Leadership

The Identity Leadership Inventory (Steffens et al., 2014) is a 15-item measure that assesses the four components of identity leadership: (a) Prototypicality (e.g., "the exercise instructor embodies what the group stands for"); (b) Advancement (e.g., "the exercise instructor promotes the interests of the members of the group"); Entrepreneurship (e.g., "the exercise instructor makes people feel as if they are part of the same group"); and (d) Impresarioship (e.g., "the exercise instructor devises activities that bring the group together").

All items included the words "exercise instructor" rather than "leader" to fit with the exercise setting. Participants were required to consider each item and to rate on a Likert scale, for example, from 1 (*I do not agree at all*) to 7 (*I agree completely*).

As the ILI questionnaire at the time of this study had not yet been validated to use with group exercisers, a confirmatory factor analysis (CFA) using AMOS was undertaken. Using the current study sample, four indices of model fit were considered, as suggested by Kline (2011): chi-square goodness of fit ($\chi^{2)}$, the comparative fit index (CFI); the root mean square residual (SRMR) and the root mean square error of approximation (RMSEA). Overall the instrument showed a good fit to the four-factor structure, $\chi^2(84) = 294.01$, $p < .001$, CFI = .92, SRMR = .05, RMSEA = .10 (90% CIs: .09, .11), fulfilling the criteria of fitting at least two of the model indices (Hu & Bentler, 1999), and provides similar results to other studies which have validated the ILI (van Dick et al., 2018). These findings support the future use of the ILI in exercise leadership research.

The scale indicated excellent internal consistency across the four sub-scales (prototypicality α = .87, advancement α = .86, entrepreneurship α = .87, and impresarioship α = .86).

2.2.3.3 Mobilisation of Effort

Participants completed a five-item measure shown to capture mobilisation of effort in previous identity leadership research (Evans et al., 2021; Miller et al., 2021; Slater et al., 2018, 2019). Items were amended to the exercise context, as follows: (1) "you will exert very high levels of effort when exercising"; (2) "you want to put effort into your exercise to impress the Exercise Instructor and others by how hard I work"; (3) "you are strongly motivated to engage in exercising"; (4) "you are passionate and enthusiastic about exercising"; and (5) "you will do everything you can to fulfil your potential as an exerciser." Participants were asked to consider each item and to rate on a Likert scale, for example, from

1 (*I do not agree at all*) to 7 (*I agree completely*). The scale showed high internal consistency (α = .81), in line with previous research (α = 84, Miller et al., 2021; α = .87, Slater et al., 2018).

2.2.3.4 Mental Well-being

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) has been used extensively in research and measures mental or psychological well-being in the general population (Tennant et al., 2006).; a licence was obtained for its use in this body of research. Consisting of 14 positively worded items considering aspects of physical and psychological health (e.g., "I've been feeling optimistic about the future" and "I've been feeling useful"), participants considered each item and rated them on a 5-point Likert scale from a (*none of the time*) to b (*all of the time*). For the purpose of this study, the items were totalled and divided by the number of items to provide an individual score. The scale demonstrated excellent internal consistency (α = .90).

2.2.3.5 Physical Health

The literature indicates that single-item measures of perceived health status correspond with objective measures of current and predictive health (Haslam et al., 2018). Therefore, the study utilised the General Health Measure developed by DeSalvo and colleagues (DeSalvo et al., 2006), which asks participants to rate their overall physical health from 1 (*poor*) to 5 (*excellent*).

2.2.4 Analytic Strategy

Data analyses included four stages: (1) preliminary screening; (2) descriptive and correlational statistics; (3) hierarchical regressions; and (4) atemporal serial mediations. Following the calculation of descriptive and correlational statistics and the identification of positive relationships between variables (H1a-d), three separate hierarchical multiple

regressions were undertaken to assess whether the four principles of identity leadership (Step 2) were associated with exercisers': (1) mobilisation of effort (H2a); (2) well-being (H2b); and (3) health (H2c) after controlling for the influence of group identity (Step 1). All four principles were entered in Step 2 of the hierarchical regressions. This strategy was chosen as there is evidence that group identity is associated with our outcome variables (i.e., the social cure; Haslam et al., 2018) and fits the premise of the identity leadership model (Haslam et al., 2020). Thus, the study was able to ascertain whether identity leadership explained any additional variance in the models beyond group identity and whether to continue embarking on any further analysis.

Finally, serial mediation analyses examined the indirect effects of the four identity leadership principles on well-being and physical health through the potential mechanisms of social identification and mobilisation. Addressing H3a and H3b, one serial atemporal mediation model was conducted per identity leadership principle (4 for well-being, 4 for health). For completeness, the mediators were run in reverse (i.e., mobilisation before social identification). Analyses of indirect effects were conducted through the lavaan package of R software (v. 4.0.0). Structural equational model estimates (with two serial mediators) are reported alongside robust standard errors; structural equational model estimates (with two serial mediators) are reported using the Satorra-Bentler correction (Chou et al., 1991; Satorra & Bentler, 1988) due to multivariate non-normality. The Satorra-Bentler correction is robust to non-normality (Satorra & Bentler, 1988). Robust standard errors enabled the calculation of 95% confidence intervals (CIs) for all indirect effects. A significant indirect effect can be determined if CIs do not cross zero (Zhao et al., 2010). Further, a good-fitting model is required to interpret paths of a structural model (Imai et al., 2010); hence, the robust comparative fit index (i.e., the discrepancy between the data and the hypothesized model, CFI), the standardized root mean square residual (i.e., standardized difference between the

observed correlation and the predicted correlation; SRMR), and the robust root mean square error of approximation (i.e., absolute measure of fit; RMSEA) were reported. Values close to .08 for the robust RMSEA and .06 for the robust SRMR indicate a good model fit; equally, values close to .95 for CFI (Hu & Bentler, 1999) constitute a good model fit. A correlation matrix (see Table 1) identified that intercorrelations between variables (excluding the four identity leadership principles) were below the .80 cut-off (Berry & Feldman, 1985), which confirmed the suitability of producing four mediation models, as opposed to one based on a composite total score, allowing for more discrimination between the different principles.

2.3 Results

2.3.1 Preliminary Analysis

Prior to the main analysis, there was a preliminary screening of the data. First, the data was screened and examined for missing values using Little's MCAR test, which indicated that 0.19% of data across all variables was missing at random, with $\chi^2 = 499.14$, df $= 530$, $p > .05$. As suggested for data missing at random, expectation maximisation (EM) was used to estimate the missing values, providing a complete data set (Tabachnick & Fidell, 2018). Following this, the data was screened for outliers by reviewing the z scores, and data points with z scores over the value of 2 were winsorized (Miller et al., 2020, 2021; Smith, 2011). Items from Prototypicality ($n = 9$), Advancement ($n = 7$), Entrepreneurship ($n = 9$), Impresarioship ($n = 10$), group identity ($n = 8$), mobilisation ($n = 9$), well-being ($n = 7$) and health ($n = 14$) were winsorized.

As expected, the data did not assume a normal distribution, with the variables indicating negatively skewed distributions and scores clustering at the high end of the scale. These ceiling effects are found in identity leadership research with similar populations (Fransen et al., 2022; Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022) and generally within health-based research with measures using

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Likert scales (Huang et al., 2008). However, the probability plots indicated reasonable normality, and with a sample of over 200, any skewness or kurtosis would unlikely negatively impact any further analysis (Tabachnick & Fidell, 2018). In checking for multi-collinearity, the association between Prototypicality and Advancement, and Advancement and Entrepreneurship, produced correlations of over .70; however, with the collinearity statistics indicating that all tolerance levels were above .10 and the VIFs were under 10, this was not a concern. Only one case had a Mahalanobis distance value > 20.52; however, the maximum Cook's distance of 0.49 suggested that this value was not influencing the regression models. Assumptions of linearity, homoscedasticity, and independence of residuals were met.

As part of the preliminary work, nested multi-level designs were considered by analysing the group data at individual and group level (gym group and other physical activity group). One-way ANOVAs were conducted with the outcome measures as the dependent variables and the group variable as the fixed factor. No significant differences were found between the groups in any of the outcome measures (i.e., mental well-being, $F(1, 241) = .050$, $p = .823$).

Means, standard deviations, and correlations between all variables are presented in Table 1. Providing evidence for H1a-H1d, the majority of correlations were significant at the level of $p < .001$, with only the relationship between *impresarioship* and *physical health* found to be non-significant ($r = .09$). Most of the inter-item correlations were above or close to .3.

Table 1 *Means, standard deviations, and correlations of study variables*

Variable	M	SD	1	2	3	4	5	6	7	8
1. Prototypicality	5.39.	1.17	-							
2. Advancement	5.59	1.12	.74**	-						
3. Entrepreneurship	5.48	1.10	.65**	.75**	-					
4. Impresarioship	3.76	1.11	.57**	.60**	.69**	-.				
5. Group Identity	4.79	1.50	.39**	.39**	.50**	.49**	-			
6. Mobilisation of Effort	5.40	1.06	.38**	.38**	.33**	.31**	.39**	-		
7. Mental Well-Being	3.57	.75	.27**	.19**	.26**	.24**	.26**	.28**	-	
8. Physical Health	3.88	.70	.21**	.14*	.27**	.09	.23**	.34**	.53**	-

** Correlation is significant at 0.001 level (2-tailed) * Correlation is significant at 0.05 level (2-tailed)

2.3.2 Main Analysis

2.3.2.1 Hierarchical Multiple Regressions

2.3.2.1.1 Mobilisation of effort. Providing support for H2a, group identity was entered at Step 1, explaining 15% of the variance in mobilisation, $F(1, 241) = 42.39$, $p <$ .001. After the entry of the ILI sub-scales at Step 2, the total variance explained increased by 8% to 23%, $F(5, 237) = 13.80$, $p < .001$. In the final model, only two measures, group identity ($\beta = .272$, $p < .001$) and prototypicality ($\beta = .192$, $p < .03$), were identified as significant predictors (see Table 2 for all regression results). Advancement ($\beta = .167$, $p =.09$), entrepreneurship ($\beta = -.069$, $p = .50$) and impresarioship ($\beta = .019$, $p = .81$) were not found to be significant predictors.

2.3.2.1.2 Mental Well-Being. In line with H2b, group identity (Step 1) explained 7% of the variance in mental well-being, $F(1, 241) = 16.96$, $p < .001$. After the entry of the ILI sub-scales at Step 2, the total variance explained by the model increased by 4% to 11%, $F(5,$

237) = 5.816, *p* < .001. In the final model, only two measures, group identity (β = .144, *p* < .04) and prototypicality (*β* = .217, *p* < .02), were identified as significant predictors. Advancement (*β* = -.145, *p* < .18), entrepreneurship (*β* = .122, *p* = .25), and impresarioship (*β* = .049 *p* = .58) were not found to be significant predictors in the model.

2.3.2.1.3 Physical Health. Providing evidence for H2c, group identity (Step 1) explained 6% of the variance in physical health, $F (1, 241) = 13.98$, *p* < .001. After the entry of the ILI sub-scales at Step 2, the total variance explained by the model increased by 7% to 13%, $F (5, 237) = 7.27$, *p* < .001. In the final model, the three measures of group identity (*β* = .168, *p* < .02), entrepreneurship (*β* = .390, *p* < .001), and impresarioship (*β* = -.241, *p* < .01) were identified as significant predictors. Prototypicality (*β* = .184, *p* = .050) and advancement (*β* = -.208, *p* = .052) were both non-significant predictors (see Table 3 below for all regression models).

Beyond group identity, most identity principles were associated with exercisers' mobilisation of effort, mental well-being, and physical health. Further, group identity and prototypicality positively predicted mobilisation and mental well-being, while group identity, entrepreneurship, and impresarioship were related to physical health.

Table 2 *Hierarchical regression analyses for group identity and identity leadership predicting mental well-being, mobilisation of effort, and physical health of group exercisers.*

			Step 1					Step 2		
Variable	B	95% CIs	SE	β	T	b	95% Cls	SE	β	T
Mental Well-being										
Group Identity	.13	.07,.19	.03	.26	4.12**	.07	.00,.14	.04	.14	1.98*
Prototypicality						.14	.02, .26	.06	.22	2.30*
Advancement						-.10	-.25, .05	.07	-.15	-1.34
Entrepreneurship						.09	-.06,.23	.08	.12	1.44
Impresarioship						.03	-.09, .16	.06	.05	.55
R^2			.07** (ΔR^2=.06**)						.11**(ΔR^2=.09**)	
Mobilisation of Effort										
Group Identity	.27	.19,.35	.04	.39	6.51**	.19	.10, .29	.05	.27	4.01**
Prototypicality						.18	.02,.34	.08	.19	2.17*
Advancement						.16	-.03,.36	.10	.17	1.66
Entrepreneurship						-.07	-.27, .13	.10	-.07	-.69
Impresarioship						.02	-.14, .18	.08	-.02	.23
R^2			.15** (ΔR^2=.15**)						.23** (ΔR^2= .21**)	
Physical Health										
Group Identity	.11	.05, .17	.03	.23	3.74**	.08	.01,.15	.04	.17	2.34*
Prototypicality						.12	.00,.23	.06	.18	1.97
Advancement						-.14	-.28,.00	.07	-.21	-1.95
Entrepreneurship						.28	.13,.41	.07	.39	3.67**
Impresarioship						-.16	-.28, -.05	.06	-.24	-2.74*
R^2			.06** (ΔR^2=.05**)						.13** (ΔR^2=.12**)	

Note. * $p < .05$, ** $p < .001$.

2.3.2.2 Indirect Effects

In the following analyses, the four identity leadership principles formed the predictor variable (X), with group identity as mediator 1 (MV), mobilisation as mediator 2 (MV), and mental well-being and physical health as the dependent variable (Y). Mediation models in this order were a good fit (Std. RMR ≤ .05, RMSEA < .08, CFI > .95). Good fit was also identified when the mediators were reversed (Std. RMR ≤ .06, RMSEA < .08, CFI > .95). In Figures 1 to 3 below, the three relevant models are shown to illustrate the findings.

2.3.2.2.1 Mental Well-being. Supporting H3a, the study found evidence for the relationship between two identity leadership principles and mental well-being, mediated by group identity and mobilisation. Firstly, there was evidence of significant positive total (β = .11, p < .001) and direct (β = .10, p = .02) effects for *prototypicality* on *mental well-being* (Total: β = .11, p < .001; Direct β = .10, p = .02). There was a non-significant indirect effect for prototypicality on *mental well-being* through *group identity* (β = .03, CIs = -.01, .07). There was a significant indirect effect for prototypicality on *mental well-being* through *mobilisation* (β = .03, CIs = .001, .06) and there was a non-significant indirect effect through both *group identity* and *mobilisation* (β = .01, CIs = -.001, .03). When the mediators were reversed (i.e., mobilisation placed before social identification), there was a non-significant indirect effect through both *mobilisation* and *group identity* (β = .01, CIs = -.001, .02).

Similarly, the study found evidence of significant positive total (β = .12, p = .017) and close to significant direct (β = .08, p = .051) effects for *entrepreneurship* on *mental well-being*. There was a non-significant indirect effect for entrepreneurship on well-being through *group identity* (β = .04, CIs = -.02, .10) and through mobilisation alone (β = .02, CIs = -.001, .05). There was a significant indirect effect through both *group identity* and *mobilisation* (β = .02, CIs = .001, .04). When the mediators were reversed (i.e.,

mobilisation placed before group identity), there was a non-significant indirect effect through

both *mobilisation* and *group identity* (β = .03, CIs = -.01, .07).

Further, the study found non-significant positive total and direct effects

for *advancement* on *mental well-being* (Total: β = .05, p = .27; Direct: β = .04, p = .42). There

was evidence of a significant positive total effect for *impresarioship on mental well-being*

(Total: β = .10, p = .045); however, there was a non-significant direct effect of impresarioship

on physical health (Direct: β = .08, p = .11). When the mediators were reversed, total and

direct effects were non-significant for both advancement and impresarioship (See Tables in

Appendix 1 for all Mediation Tables).

Overall, in simple mediation, group identity did not mediate the positive relationship

between the principles of identity leadership and mental well-being; mobilisation

significantly mediated the positive relationship between prototypicality and mental well-

being. In serial, group identity and mobilisation mediated the positive relationship between

entrepreneurship and mental well-being (see figures below).

Figure 1 *Serial multiple mediation model of entrepreneurship on mental well-being*
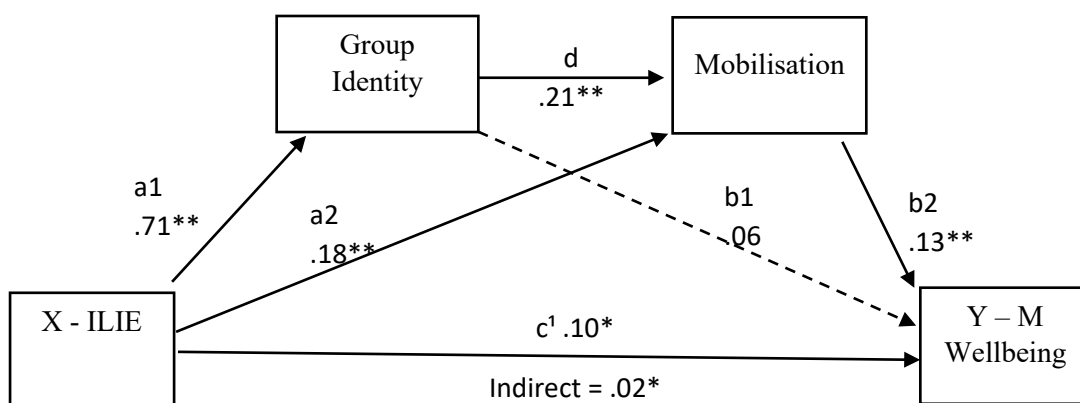
*p < .05, **p< .01*
The 95% CI indicate a significant indirect effect. M1 is group identity, and M2 is
mobilisation. Solid arrows depict significant associations, and dashed arrows depict non-
significant associations. ILIE is leader entrepreneurship.

Figure 2 *Serial multiple mediation model of prototypicality on mental well-being*
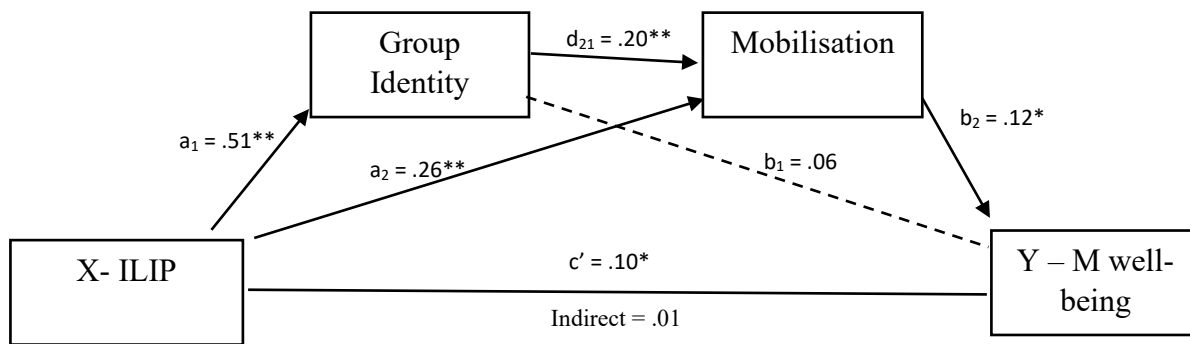
Notes: p < .05*, p< .01**, The 95% CI indicate a significant indirect effect. M1 is group identity, and M2 is mobilisation. Solid arrows depict significant associations, and dashed arrows depict non-significant associations. ILIP is leadership prototypicality.

2.3.2.2.2 Physical Health. In line with H3b, there were significant positive total and direct effects for *entrepreneurship* on *physical health* (Total: β = .14, p = .005; Direct: β = .11, p = .03). There was a non-significant indirect effect for entrepreneurship on physical health through *group identity* (β = .02, CIs = -.03, .07) and there was a significant indirect effect for entrepreneurship on physical health through *mobilisation* (β = .03, CIs = .01, .06). Further, there was a significant indirect effect through both *group identity* and *mobilisation* (β = .03, CIs = .01, .05). When the mediators were reversed, there was a non-significant indirect effect through both *mobilisation* and *group identity* (β = .003, CIs = -.01, .01).

Also, the study found there were non-significant positive total and direct effects for *prototypicality on physical health* (Total: β = .06, p = .13; Direct: β = .04, p = .31), *advancement on physical health* (Total; β = .01, p = .84; Direct; β = -.01, p = .78) and *impresarioship on physical health* (Total; β = -.03, p = .60; Direct: β = -.06, p = .25). When the mediators were reversed, total and direct effects remained non-significant for all three Identity leadership principles (see Appendix 1 for Mediation Tables and Table 3 below for all total, direct, and indirect effects for all models).

Overall, in simple mediation, group identity did not mediate the positive relationship between the principles of identity leadership and physical health; mobilisation significantly mediated the positive relationship between entrepreneurship and physical health. In serial, group identity and mobilisation mediated the positive relationship between entrepreneurship and physical health (see figure below, all other mediation figures can be found in Appendix 1).

Figure 3 *Serial multiple mediation model of entrepreneurship on physical health*
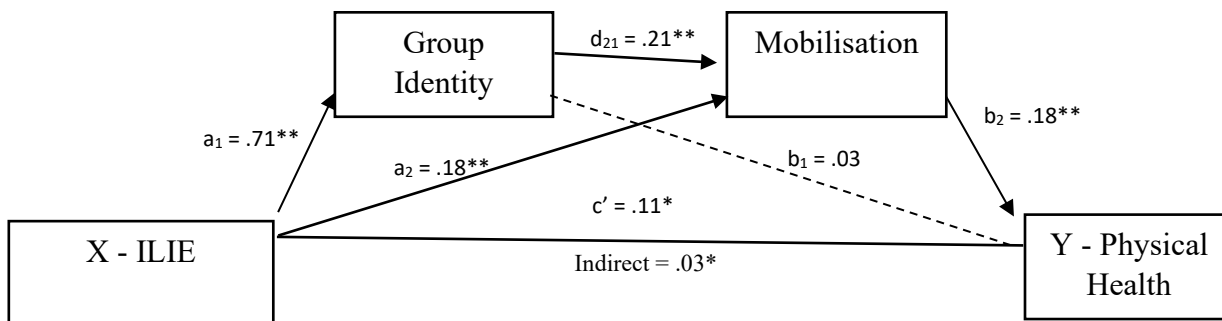
Notes: $p < .05^*$, $p < .01^{**}$, " – The 95% CI indicate a significant indirect effect. M1 is group identity, and M2 is mobilisation. Solid arrows depict significant associations, and dashed arrows depict non-significant associations. ILIE is leader entrepreneurship.

Table 3 *Summary of total, direct and indirect effects*

	Prototypicality	Advancement	Entrepreneurship	Impresarioship
Mental Well-being				
Total Effect	β = .11**	β = .05	β = .12*	β = .10*
Direct Effect	β = .10*	β = .04	β = .10*	β = .08
Group Identity	β = .03	β = .04	β = .04	β = .04
Mobilisation of Effort	β =.03*	β = .04	β = .02	β = .02
Group Identity*Mobilisation of Effort	β = .01	β = .02	β = .02*	B= .02
Mobilisation of Effort*Group Identity	β = .01	β= .001	β = .01	β = .01
Physical Health				
Total Effect	β =.06	β =.01	β = .14*	β =-.03
Direct Effect	β =.04	β =-.01	β = .11*	β = -.06
Group Identity	β =.03	β = .03	β = .02	β = .05
Mobilisation of Effort	β = .05	β = .05	β = .03*	β = .03
Group Identity*Mobilisation of Effort	β = .02	β = .02	β = .03*	β = .03
Mobilisation of Effort*Group Identity	β = .01	β = -.02	β = .003	β = .01

*Note**: p≤05*, p≤.001**, Group Identity*Mobilisation of Effort = Group Identity as mediator 1, and Mobilisation of Effort as mediator 2.
Mobilisation of Effort*Group Identity = Mobilisation of Effort as mediator 1, and Group Identity as mediator 2 (mediators in reverse)*

<center>**2.4 Discussion**</center>

As part of the first aim of this thesis, this study's novel intention was to examine the influence of identity leadership on exercisers' mental well-being and physical health through the mediators of group identity and mobilisation of effort. Supporting the hypotheses, as expected, mainly significant positive associations were observed between the identity leadership principles and: group identity (H1a); mobilisation of effort (H1b); mental well-being (H1c); and physical health (H1d). Only the relationship between identity impresarioship and physical health was non-significant. Further, hierarchical regression indicated that beyond group identity, identity leadership was positively associated with mobilisation of effort, well-being, and health, explaining between 4 and 8% of the variance in the three models (H2a-H2c). Prototypicality, entrepreneurship, and impresarioship were significant predictors. In addition, the atemporal serial mediation findings suggest that the relationships between identity leadership, well-being, and health were serially explained by group identity and mobilisation of effort. The analyses of the indirect effects show that the relationship between prototypicality, entrepreneurship, and well-being were mediated: (1) by *mobilisation* in the prototypicality model; and (2) by *group identity* and *mobilisation* in the entrepreneurship model (H3a). Further, indirect effects show that the relationships between entrepreneurship and health were mediated: (1) by *mobilisation*; and (2) by *group identity* and *mobilisation* (H3b).

2.4.1 Implications for Theory and Practice

The present study has several implications for theory as well as practice. First, the data strengthens the recent evidence in exercise settings identifying the potential role that identity leadership can play in fostering a sense of group identity and effort (Steffens et al., 2019; Stevens, Rees, Steffens et al., 2019, Stevens, White et al., 2022), thus adding weight to the assertion that there may be some merit in moving beyond individualistic models of

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exercise behaviour, this study extends knowledge by presenting evidence that has documented the potential of identity leadership to directly influence group exercisers' perceptions of mental well-being and physical health, which has been identified in organisations (Harms et al., 2017; Krug et al., 2020; Krug et al., 2021; Steffens et al., 2017), professional sports settings (Fransen et al., 2019; Mertens et al., 2021) and very recently in walking groups focusing on well-being (Fransen et al., 2022). To illustrate, in considering the hierarchical regression analysis, after controlling for group identity, it was suggested that identity leadership predicted a small but significant amount of variance in the models of mobilisation of effort, mental well-being, and physical health. Specifically, identity leadership increased the total variance of the final models to between 11 and 23%, and in line with the social cure research (e.g., Greenaway et al., 2016) and other exercise studies (Steffens et al., 2019; Stevens, Rees, Coffee et al., 2020), group identity remained a significant predictor.

Second, acknowledging the need to extend the literature pertaining to the mechanisms that underpin the relationships between identity leadership and important outcomes (Stevens, Rees & Cruwys, 2021), our atemporal mediation findings were novel in that the relationships between identity leadership and both mental well-being and physical health, were serially explained by group identity and mobilisation of effort. Supporting the premise of identity leadership, the mediation analysis suggested that the enactment of entrepreneurship influences followers into internalising the group as part of their self-concept, forming the basis for follower behaviour. As such, followers were more likely to engage with the group they identify with and, in turn, interpret greater mental well-being and physical health as a result of greater effort. These findings extend previous studies and highlight the potential role of identity leaders to encourage both group identity (Greenaway et al., 2015) and effort (Steele et al., 2017) as critical antecedents of mental well-being and physical health but go

further by evidencing that these key factors may act as mediators both individually, and in serial, within exercise leadership contexts. In addition, although found in the serial mediations, group identity was not an indirect mediator in the simple mediation models, which is in keeping with the identity leadership model, but in contrast with other studies that have found that group identity indirectly mediates the relationship between identity leadership and well-being (Fransen et al., 2022). This difference could be due to the participants in this study being part of well-established groups compared to the other research study, perhaps suggesting that group identity plays a secondary role in influencing desired outcomes once groups are established.

Third, when considering the individual contribution of the identity leadership principles in the analyses of the study, the results suggest that some of the principles may have more of a potential impact than others. Overall, across the regression and mediation analyses, prototypicality and entrepreneurship appeared to be the most robust predictors, demonstrating the importance of an exercise instructor displaying behaviours that represent and create a shared group identity. Prototypicality emerged as the only identity leadership principle to predict well-being in both the regression and mediation models, which perhaps reflects the importance of this first principle in providing the foundations of identity leadership, which has been found in other studies (Stevens et al., 2018). However, entrepreneurship was identified as the strongest predictor of physical health, which is in keeping with previous findings found in the organizational (Krug et al., 2020, 2021; Steffens et al., 2019) and sports literature (Fransen et al., 2020; Mertens et al., 2020, 2021), and was also the only principle identified as part of the serial mediations for both mental well-being and physical health. These findings support recent studies, which have focused on this principle when considering the impact of identity leadership on different exercise or physical

activity outcomes, i.e., adherence (Stevens, White et al., 2022). However, although significance was found, the effect sizes for identity entrepreneurship were small.

In terms of the other principles, advancement was not a significant predictor in any of the models, again, which may relate to the participants of this study having well-established group identities with their exercise groups, so there is less emphasis on this principle, or perhaps that any potential significance is reduced by the acknowledged significant overlap between the four principles (Steffens et al., 2014). Interestingly, impresarioship negatively predicted physical health in the regressions and provided a negative total effect in the mediation analysis. Therefore, a leader's efforts to embed structures and activities may not always fit with the shared goals and identity of the group in relation to physical health. These findings correspond with those of Krug et al. (2021), who found a positive relationship between identity impresarioship and increased loneliness of employees during COVID, suggesting that the leader's efforts to provide structures to help employees during this period increased stress and alienation, through leaders introducing activities, which were not based on shared group values. In contrast, several recent experimental studies have found the importance of embedding shared group values to encourage mobilisation of effort (Evans et al., 2021; Slater et al., 2018). For example, in a study by Evans et al., 2021, researchers found that participants presented with a coach who embedded social group identities reported higher levels of intentional mobilisation, and leader trust and influence. These mixed findings and the lack of research studies, indicate that there needs to be further consideration of the role of impresarioship and the leader embedding shared social identities in group exercise contexts.

Overall, the findings of the current study appear to stress the importance of exercise instructors emphasizing identity entrepreneur behaviours, perhaps in the form of using "we" and "us" language and other strategies that have been implemented to create a sense of shared identity in both experimental (Steven, Rees, Steffens et al., 2019) and intervention studies

(Slater & Barker, 2019). However, the findings also suggest that representing and embedding group identity through the principles of prototypicality and impresarioship also potentially play a part in participants' perceptions of mental well-being and physical health. In addition, from the literature, leadership principles do not exist in isolation, and it is inferred that all the principles need to be in place and maintained for leaders to develop shared group identities to influence followers (Haslam, Reicher & Platow, 2020). Therefore, to further understand the principles and their relationships with mental well-being and physical health within the context of group exercise settings, more experimental studies that manipulate all the principles and applied intervention studies are needed.

2.4.2 Limitations and Future Research Directions

Despite the strengths of the study, there are shortcomings to note. First, the study uses a correlational cross-sectional design, meaning that data was taken at one-time point, and causal relationships cannot be established. Nevertheless, the study aimed to go beyond describing relationships in a novel topic area by conducting atemporal serial mediation analyses to provide the first step toward identifying underpinning mechanisms and suggesting the basic tenets of the approach (i.e., an identity leader can influence/motivate through a sense of shared group identity). However, there is some criticism of mediation analysis (Bullock et al., 2021), suggesting that the approach has many limitations and does not necessarily identify indirect relationships. To mitigate this, the study provided a hypothesis for the mediation based on identity leadership theory and previous research, and the indirect effects were evaluated using confidence intervals and reversing the mediators using the laavan package. To test any mediation effects more fully, researchers could seek to adopt further experimental and longitudinal designs.

Second, using a convenience sample in the study produced a heterogenous sample, which limits the study in terms of generalising any findings, and it was not possible to run a

more complex multi-level nested analysis. Participants who agreed to take part in the study tended to be seasoned group exercisers (*Membership Average* = 30.60 months) from a large array of forty-six different exercise groups. However, it was possible to identify and test the data at an individual and initial group level (i.e., gym exercise groups and other physical exercise groups), and no differences were found, which rendered any further analysis with nested groups redundant. Accordingly, to examine identity leadership further, researchers may consider using more homogenous and balanced samples to evaluate differences between exercise group populations. Also, there is a need to go beyond recruiting experienced exercisers and consider identity leadership's impact on non-exercisers (i.e., those who do not currently meet prescribed guidelines), especially those from difficult-to-engage groups (i.e., older adults).

Finally, there are potential limitations regarding the measures used in the study. As with other identity leadership studies within sport and exercise environments (Slater & Barker, 2019; Steffens et al., 2019), all measures were highly scored by participants (with the average above the mid-point of the scale), which may have resulted in the significant, but small effect sizes. Again, it would be beneficial to repeat the study with other exercise group members, perhaps from less established exercise groups, and as discussed above, recruiting those who are less experienced group exercise members. Further, the mobilisation of effort questionnaire is not a direct measure of effort and instead measures intention and motivation to exert effort. However, other available measures which ask participants to rate their effort are still subjective measures of effort (Steffens et al., 2019; Stevens, White et al., 2022), in which participants are required to rate their effort levels following an exercise class, and whose responses, as exercise is a health behaviour, may be subject to social desirability bias (Brenner & DeLamater, 2014). Finally, although the mobilisation of effort measure has been successfully utilised in other studies and positive relationships have been found between

mobilisation of effort (or intention) and actual effort (Slater & Barker, 2019), future studies

could consider actual behavioural measures of effort in naturalistic settings, for instance, the

use of fitness tests in intervention studies (which are utilized in Chapter 4 (Study 3) of this

thesis).

Taking some of these recommendations into account, Chapter 3 (Study 2) considers

the impact of identity leadership on both exercisers and non-exercisers, employing a quasi-

experimental design.

2.4.3 Conclusion

From the literature, identity leadership appears to be able to positively influence a

range of follower behaviours, attitudes, and beliefs, through a shared sense of social identity.

Addressing the first aim of this thesis, the findings reported in Chapter 2 (Study 1) support

the associations between identity leadership, group identity, mobilisation of effort, mental

well-being, and physical health and suggest that identity leadership may promote their

exercise group's mental well-being and physical health through exercisers' group identity and

mobilisation of effort. Further, the findings highlight those various principles that may be

influential in this, especially entrepreneurship. Chapter 3 (Study 2) will build on the results of

the current chapter by exploring the associations and the four principles experimentally by

examining the influence of the application of all four principles of identity leadership (vs.

not) on group identity, mobilisation of effort, positive/negative affect and the intention to

return of both exercisers and non-exercisers.

CHAPTER 3: LEADING "US" TO BETTER MENTAL AND PHYSICAL HEALTH: GROUP EXERCISE INSTRUCTORS' ENGAGEMENT IN IDENTITY LEADERSHIP BEHAVIOURS PROMOTE MOBILISATION OF EFFORT, WELL-BEING, AND INTENTION TO RETURN.

3.1 Introduction

Chapter 2 (Study 1) addressed the first aim of this thesis in that it supported the associations between identity leadership and mental well-being and physical health, drawing upon the existing literature in organizational and sports research (Fransen et al., 2019; Steffens et al., 2018). Further, the findings identified processes underlying these relationships, suggesting that group identity and mobilisation of effort explain mental well-being and physical health. In sum, as predicted, the enactment of identity leadership enabled followers to internalise the group as part of their self-concept, which then formed the basis for influencing follower behaviour; it was this sense of group identity that then encouraged greater mobilisation of effort and increased positive perceptions of mental well-being and physical health. Highlighting the importance of a leader shaping and creating a shared group identity, the study emphasised the identity leadership principle of entrepreneurship in this process. However, this emphasis was not substantial, and other principles also played a significant role in both the mediation and regression analyses; therefore, given that the first study detailed some preliminary evidence for the associations and underlying mechanisms, this current study looked to manipulate all four principles of identity leadership within a group exercise setting, to investigate the propositions experimentally. Accordingly, Chapter 3 addresses the second aim of this thesis and extends Chapter 2 (Study 1) by considering the extent to which leaders engaging (vs.) not in identity leadership influences the group identity, levels of mobilisation of effort, positive/negative affect, and adherence of exercisers and non-exercisers. In doing so, Chapter 3 extends the literature in that it looks to manipulate all four principles within a group exercise context and considers non-exercisers (i.e., those who do

not currently adhere to minimum physical activity/exercise guidelines) and well as those who currently take part in instructor exercise groups. Further, the study uses a novel Experimental Vignette Methodology (EVM) to consider any differences.

As part of the post-transformational leadership era, identity leadership provides an alternative approach to traditional leadership approaches, emphasising that effective leadership promotes a shared identity of leaders and followers, providing a sense of "we" and "us", which provides the platform to mobilise groups to reach desirable collective outcomes and goals. Unsurprisingly, considering the nature of leadership, there are commonalities between other approaches (i.e. distributed and servant leadership), which have stressed the importance of followers and group social processes (Dinh et al., 2014); however, it is argued that identity leadership is unique in that it is underpinned by theory and a vast body of research (Haslam, Reicher & Platow, 2020). Extending social identity theory, the approach evolved from earlier research primarily focusing on the concept of the prototypical leader and the importance of shared identity to mobilize group members and to encourage positive perceptions of the leader (i.e., the leader being effective; Giessner & van Knippenberg, 2008; Giessner, van Knippenberg & Sleebos, 2008). Haslam, Reicher, and Platow (2020) synthesise and extend this work with their theory of the four principles of identity leadership, which goes beyond prototypicality and includes the principles of advancement, entrepreneurship, and impresarioship. From this development, a large body of research has emerged.

Although a comprehensive literature supports the identity leadership approach and the contentions of the four principles, there are obvious limitations. The majority of the research emphasises the principles of prototypicality (Steffens et al., 2021) and, to some degree, entrepreneurship within organizational settings or has measured identity leadership as an overall construct (as is evident from Chapter 2 (Study 1)). Overall, fewer studies consider the other principles. Although it could be argued that prototypicality provides the foundations for

identity leadership, it is multi-factorial and requires leaders to integrate and maintain all four principles (Haslam, Reicher & Platow, 2020). Although there have been attempts to apply the principles as part of overarching programmes targeting identity leadership as a whole (i.e., the 3Rs or 5Rs shared programmes; Fransen et al., 2020, 2022; Haslam et al., 2017; Mertens et al., 2020, 2021; Slater & Barker, 2019), less is known about how these programmes could be applied within a structured exercise group with a designated group exercise instructor (Rowe & Slater, 2021). Therefore, to consider this further, there needs to be more clarity around the four principles, and the potential behaviours attached to these within the group exercise context; in other words, how would a group exercise instructor implement the four principles of identity leadership? Although some suggestions are available in the literature, and there are some examples of studies in sport settings that consider one of the principles experimentally (Evans et al., 2021; Slater et al., 2018), there is only one experimental study based in an exercise/physical activity setting, which considers one of the principles, that or entrepreneurship (Stevens, Rees, Steffens et al., 2019). In addition, the researcher is aware of only one study that attempts to manipulate all four principles within an experimental design focusing on coach leadership (Miller et al., 2021). In this series of studies, there is more of a description of the theoretical principles based on the ILI than attempting to identify the required behaviours. With this in mind and the acknowledgement that there is a need to maintain each of the interrelated principles to ensure the continuation of leadership effectiveness (Haslam, Reicher & Platow, 2020), further research is needed. Studies that manipulate all principles would help further develop the model and our understanding of the individual principles within different settings beyond organisations, potentially allowing a greater distinction between identity leadership and other leadership approaches. Also, there is some discussion in the recent literature that more research is needed within sports and

exercise settings to experimentally manipulate identity leadership using more creative

methodologies such as vignettes (Stevens, Rees & Cruwys, 2021).

3.1.1 The Current Study and Hypotheses

Considering the limited research around the principles of identity leadership and,

more generally, within exercise contexts, this chapter looks to extend the findings of Chapter

2 (Study 1) experimentally. Therefore, addressing the second aim of this thesis, Chapter 3

attempts to manipulate all four identity leadership principles using a novel vignette

methodology (Aguinis & Bradley, 2014) within a structured group exercise setting. Further,

as the whole premise of the thesis is to consider whether identity leadership can potentially

encourage and motivate those individuals who currently do not achieve the minimum

exercise requirements, this chapter will additionally investigate the effects between

individuals who do not participate in the prescribed moderate/vigorous intensity exercise

regime compared to those that do (defined as exercisers vs. non-exercisers). In other words,

we explore the impact of a group exercise instructor adhering to the four principles and

taking an identity leadership approach (high IL) compared to a group exercise instructor

taking a "typical" leadership style in an exercise context (comparison), and the impact of

these on exercisers vs. non-exercisers. Therefore, it was hypothesised that:

- Exercise instructors engaging in the four principles of identity leadership (vs. not
  engaging) will result in group members' greater group identity (H1), mobilisation
  (H2), and positive affect (H3a), together with lower negative affect (H3b) and
  increased potential adherence (H4).
- There will be no differences between exercisers and non-exercisers in their response
  to an exercise instructor engaging in all four principles of identity leadership (vs. not
  engaging), resulting in increased perceptions of group identity, mobilisation of

effort, positive affect, together with lower negative affect and increased potential adherence (H5).

3.2 Method

3.2.1 Participants and Design

One hundred and two undergraduate and postgraduate students from UK Universities were recruited for the study through direct advertising in academic departments and on survey research forums. Implementing an opportunistic sampling strategy, the study asked for participants over the age of 18, who identified themselves as either exercisers or non-exercisers, with exercisers defined as those who currently took part in any type of moderate/vigorous intensive exercise(e.g., circuit training, group exercise, swimming, or recreational sport) for at least 2.5 hours a week, and non-exercisers were those who did not take part in any moderate/vigorous intensive exercise activities. Fifty-one exercisers and 51 non-exercisers were recruited, with over 86% of the population being between the ages of 18 and 34 and 68% of participants identifying as female. All exercisers categorised themselves as exercising between 2.5 hours and over 6 hours a weeks, with the average being between 2.5 and 3 hours a week, while 100% of the non-exercisers categorised themselves as not meeting the physical activity guidelines, with the average levels being between 0 and 1 hour per week.

A 2 (leadership: high IL vs. comparison) X 2 (exerciser: yes vs. no) mixed within-subject counter-balanced design was adopted, with all participants exposed to both the high IL and comparison conditions. A within-subject design was selected as opposed to a between-subject design, with the former being the preferred approach for the method chosen, as being exposed to all conditions allows participants an understanding of the context of the study and encourages more genuine responses based on comparison (Aguinis & Bradley, 2014). Due to the original nature of the study using an EVM approach within a group exercise context, a

review of the relevant literature identified that only a small number of studies within sporting

settings were available to aid the estimation of power and sample size (Evans et al., 2021;

Miller et al., 2021; Slater et al., 2018). Therefore, a Priori G*Power (v 3.1.6) (Faul et al.,

2007) repeated measures within-between ANOVA calculation (α error probability = 0.05, 1 –

β error probability = 0.95) based on the available comparable research (Miller et al. 2021; $\eta 2$

$p \geq 0.04$, $f \geq 0.20$), estimated a minimum total sample of 80.

3.2.2 Vignette Development

Using an EVM (Aguinis & Bradley, 2014), two photographic slideshow vignettes

were produced, showing scenes from instructor-led group exercise sessions. EVM is well

established in identity leadership research within organisational (De Cremer et al., 2009) and

sporting settings (Evans et al., 2021, Slater et al., 2018; 2019). For example, Evans et al.

(2021) asked participants to read a written vignette describing a leader embedding or not

embedding social identities within a university sports environment, to explore this impact on

leadership outcomes and intentional mobilisation.

The vignettes were developed in line with recommendations for EVM studies

(Aguinis & Bradley, 2014), and for transparency, these can be found in Appendix 2. As in

other available examples, a paper-people studies approach was undertaken in which

participants explicitly respond to a hypothetical scenario, which is deemed more appropriate

when assessing specific processes and outcomes (Aguinis & Bradley, 2014). Further, Aguinis

and Bradly (2014) advise that vignettes must be as realistic as possible to increase external

validity and discuss increasing the level of immersion experienced by participants through

using presentation methods beyond written vignettes. With this in mind, it was decided to use

photographic slideshows, which showed scenes from the beginning, middle, and end of an

exercise session. Following the development of two photo shoot storyboards, a professional

photographer was employed to take the photographs for the slideshows, which involved participants recruited from a University's Sport and Exercise department. Once produced, the pictures were edited to create a slideshow using Adobe Photoshop Lightroom and Vimeo, which showed an exercise instructor taking an exercise group and included speech in the form of speech bubbles; further, for added realism, both slideshows were accompanied by a group exercise music track (the same track was used for each slideshow). Photographs were used rather than film to allow for more control and to ensure that the experiment's internal validity was not compromised; also, to ensure control, both slideshows were of the same length (3 minutes and 46 seconds long) and featured the same group exercise instructor. On completion, the slideshows and the questionnaires were uploaded onto Qualtrics (see Appendix 2).

Drawing upon the work of previous identity leadership research, which has emphasised shared social identities and values (Evans et al., 2021; Slater et al., 2018, 2019) and evidence for strategies relating to specific principles, e.g., entrepreneurship (Haslam & Reicher, 2007; Slater et al., 2015; Steffens & Haslam, 2013; Stevens, Rees, Steffens et al., 2019; Stevens, White et al., 2022), the researcher produced a high IL and comparison slideshows. In the high IL slideshow, a group exercise instructor demonstrated the four principles of identity leadership. In contrast, in the comparison slideshow, a group exercise instructor is observed adhering to the guidelines for qualified exercise instructors, as set out by the Chartered Institute for the Management of Sport and Physical Activity (CIMPSA, 2018).

In developing the high IL manipulations, there was an element of interpretation based on the available literature, which, although extensive, is limited in manipulating any of the four principles in exercise environments. Also, it is evident from the literature that the principles are multi-faceted and are subject to context (Haslam, Reicher & Platow, 2020).

Therefore, considering this, the manipulations emphasise elements of the principles highlighted in the available literature and are translated to fit within a group exercise context, specifically a strength and conditioning exercise group. With this in mind: prototypicality emphasises the instructor being "one of us", an "in-group" member who is part of the group, and prototypical in that he strongly represents and exemplifies the values of the group (strong, fit and fun), as shown by his behaviours when taking part during the session (Duck & Fielding, 2003; Haslam, Reicher, Platow, 2020; Reicher & Haslam, 2006); advancement stresses the exercise leader being an "in-group" champion who stands up for the group and is fair by not allowing the group to be momentarily disrupted (Platow et al., 1997), and by further promoting and affirming the group by explicitly comparing it to the "out-group" (Haslam et al., 2001); entrepreneurship focuses on crafting a sense of "us" with the instructor using "we" and "us" language (Fladerer et al., 2021; Haslam & Reicher, 2007; Slater et al., 2015; Slater & Barker, 2019; Stevens, Rees, Steffens et al., 2019; Steffens & Haslam, 2013) and mobilizing the group through using collective feedback and group involvement in choosing exercises (Haslam, Reicher & Platow, 2020); and finally, impresarioship emphasises the instructor embedding the group's shared identity through the instructor openly articulating the values, which are on posters in the room, class exercises matching the values (e.g. fun) and praise given at the end of the session to progress regarding the values/goals of the group (Evans et al., 2021; Slater & Barker, 2019).

As a validation check, the control condition was checked and verified with an experienced, qualified group exercise instructor. In addition, a panel of four identity leadership experts reviewed the high IL slideshow, and members were asked to review and agree that the manipulations were understandable and aligned with the four principles. Following these successful checks, a pilot study was conducted with 12 participants to test the research's feasibility and further check the manipulations' validity. All manipulations held

and compared to the control, the high IL condition indicated greater perceptions of the exercise instructor's prototypicality ($M = 4.77 \pm .65$ vs. $M = 3.92 \pm 1.70$), advancement ($M = 5.83 \pm .71$ vs. 4.10 ± 1.51), entrepreneurship ($M = 6.02 \pm .49$ vs. 3.94 ± 1.47) and impresarioship ($M = 5.98 \pm .67$ vs. 3.86 ± 1.59). The manipulations can be seen below in Table 4.

Table 4 *Manipulations for High IL Slideshow*

Principles	Goal	Manipulation	Control Comparison	Research/Theory Base
Prototypicality	Instructor to be seen to be part of the group – "being one of us"	Instructor emphasises that he is part of the "in-group," e.g., dressed casually like other group members and takes part in social chatting with the group before and after the class.	Instructor does not appear to be part of the "in-group" in terms of attire and does not take part in the social chatting with the group before or after the session.	Haslam, Reicher and Platow, (2020) Haslam et al., (2001) Reicher and Haslam, (2006)
		Instructor represents and embodies the group's values (strong, fit, and fun), e.g., demonstrates these values when he takes part in the exercise class (attempts to be highly prototypical).	Instructor does not explicitly represent the values of the group. Demonstrates the exercises, observes the class (takes part less).	
Advancement	Instructor to make the group matter – "doing it for us"	Instructor emphasises the distinctiveness of the group by comparing the group to the out-group whose members stay at home and do not exercise.	Instructor does not emphasise the distinctiveness of the group	Haslam, Reicher and Platow, (2020) Haslam et al. (2020) Platow et al. (1997) Platow et al. (2001)
		Instructor champions the "in-group" by not allowing the class to be disrupted, putting the group first.	Instructor does not champion the "in-group" by momentarily allowing the class to be disrupted	

			and, therefore, does not put the group first.	
Entrepreneurship	Instructor to shape the group – "crafting a sense of us"	Instructor uses "us" and "we" language. Instructor gives collective feedback and asks the group for any requests for exercises to emphasise a sense of "us".	Instructor uses "I" and "you" language. Instructor gives individual feedback and does not ask for requests for exercises.	Haslam, Reicher and Platow (2020) Slater and Barker (2019) Slater et al. (2015) Steffens and Haslam (2013) Stevens, Rees, Steffens, et al., (2019)
Impresarioship	Instructor to embed the group – "making us matter"	Instructor openly refers to the group's values, there are posters around the room to remind everyone, and the exercises match the values of strong, fit, and fun. Instructor gives praise in terms of progress regarding the goals/values of the group.	Instructor does not refer to any potential group values (posters advertise the group sessions only), and the exercises fit the context of a strength and conditioning class. Instructor gives individual praise to participants during the session (not collective or linked to any collective goals/values).	Haslam, Reicher and Platow, (2020) Evans et al., (2021) Slater & Barker, (2019)

3.2.3 Procedure

Following institutional ethical approval, the experiment was placed on Qualtrics and distributed via University academic departments and survey research forums. On opening the online link, participants were first asked to give informed consent following reading an information sheet and completing demographic information; each participant was then required to watch the two slideshow conditions in turn and to imagine that they were a member of the respective exercise group, and to respond to several questionnaire items following each view. To ensure counterbalance, half the participants viewed the comparison condition slideshow first and then the High IL slideshow, which was reversed for the other half of the participants, using the counterbalancing function within Qualtrics. All participants were fully debriefed on completing the task via Qualtrics. Further, to ensure validity, both the slideshows and questionnaire items were entered as forced responses on Qualtrics, and the timing component on Qualtrics ensured that only those who had spent at least 11 minutes participating in the study were included (which was the minimum time taken to complete the task during the pilot).

3.2.4 Measures

Three of the measures from Chapter 2 (Study 1) were utilised as measures: (1) group identity ($\alpha = 0.88$); (2) identity leadership (prototypicality $\alpha = 0.87$, advancement $\alpha = 0.88$, entrepreneurship $\alpha = 0.91$, impresarioship $\alpha = 0.86$); and (3) mobilisation of effort ($\alpha = 0.89$). All four sub-scales of the identity leadership measure were employed to check the identity leadership manipulations. In addition, as the study focused on the immediate response of the participants, the mental well-being and physical health measures were replaced by an affect measure to fit the experimental context (which infers both aspects of well-being), and added an intention to return question, as follows:

3.2.4.1 Positive and Negative Affect

The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) is a well-being questionnaire that measures positive and negative affect or feelings, which has been used extensively to rate affective response in exercise studies (Schmitt et al., 2020). This measure replaced the WEMWBS and the physical health questionnaires, as this measure of immediate mood response was a better fit for an experimental context. Consisting of 20 items (10 positive and 10 negative emotions), participants were asked to rate these emotions following watching the high IL and comparison control slideshows on a 5-point Likert scale from (1) very little/not at all to (5) extremely. These provided two separate scales for positive and negative emotions (with scores ranging between 10 and 50 for each). The Cronbach alpha for this scale was 0.91.

3.2.4.2 Intention to Return

The participants were asked to consider if they would return to the class after watching both the high IL and control conditions by being asked, "Would you return to the exercise group you have observed in the slideshow" and replying "yes" or "no."

3.3 Analytic Strategy

Data analyses included four stages: (1) preliminary screening; (2) manipulation checks: (3) descriptive and correlational statistics; and (4) repeated measures of mixed ANOVAs and MANOVAs. Following preliminary data screening, manipulation checks were conducted to determine differences between the identity leadership variables and the experimental and control conditions before calculating descriptive and correlational statistics. Further, two mixed ANOVAs and a MANOVA (determined by the number of dependent variable sub-scales) were undertaken to ascertain any differences between and within the conditions of high IL vs. comparison and exercisers vs. non-exercisers.

3.3 Results

3.3.1 Preliminary Analysis

The first 51 exercisers and 51 non-exercisers, who had spent at least 11 minutes completing the study, were included in the data set. As part of a preliminary analysis, the data set was screened for missing data, outliers, and distribution. No missing data was found. The data was reviewed for outliers by reviewing the z scores, and data points with z scores over the value of 2 were winsorised to reduce the influence of outliers on the data (Miller et al., 2020; Smith, 2011). Overall, 3.4% of the data was winsorized. Items from group identity ($n = 8$), prototypicality ($n = 1$), advancement ($n = 5$), entrepreneurship ($n = 6$), impresarioship ($n = 6$), mobilisation ($n = 6$), positive affect ($n = 5$) and negative affect ($n = 13$), were winsorized. As expected, with the type of measures used in our study, the data did not assume a normal distribution, with most of the variables indicating moderately skewed distributions, with scores clustering at the low or high end of the scale. However, with a total sample size of over 100, equal group sizes, plots/graphs indicating a reasonable distribution of scores, and homogeneity of variance not being violated, the data was considered suitable for parametric testing (Blanca et al., 2017).

3.3.2 Manipulation Checks

To check the validity of the manipulations, a one-way repeated measures MANOVA was conducted to compare the scores on the Prototypicality, Advancement, Entrepreneurship, and Impresarioship subscales of the Identity Leadership Inventory (Steffens et al., 2014) following watching the two slideshows (high IL and the comparison). As expected, there was a significant effect between the scores, Wilks' Lambda = .30, $F(4, 97) = 57.66$, $p < .001$, η_p^2 = .70. Compared to the comparison condition, the high IL condition indicated greater perceptions of prototypicality ($M = 5.84 \pm 0.86$ vs. 4.10 ± 1.35), advancement ($M = 6.18 \pm$

0.73 vs. 4.43 ±1,43), entrepreneurship ($M = 6.07 \pm 0.81$ vs. 4.14 ± 1.52) and impresarioship ($M = 6.07 \pm 0.81$ vs. 3.87 ± 1.51). All p values were <.001.

3.3.3 Main Analysis

As part of the main analysis, means, standard deviations and correlations between all variables were calculated (see Tables 5 and 6). The other results can be found below:

3.3.3.1 Group Identity (H1).

Results from a mixed ANOVA identified that group identity varied significantly between high IL and comparison conditions, $F(1, 100) = 155.75$, $p < .001$, $\eta_p^2 = .61$. The Bonferroni-adjusted follow-up pairwise comparisons indicated that compared to the comparison condition, participants in the high IL condition reported significantly higher levels of identification with the exercise group ($M = 5.49 \pm 1.04$ vs. $M = 3.87 \pm 1.32$, $p < .001$). In addition, there was a non-significant overall main effect of the Exerciser/Non-exerciser condition on group identity scores, $F(1, 100) = .203$, $p = .654$, $\eta_p^2 = .002$. In contrast, there was also a significant interaction between the IL (high IL and comparison) condition and the two groups (exerciser and non-exerciser) on group identity scores, $F(1, 100) = 3.75$, $p = .040$, $\eta_p^2 = .042$. Bonferroni-adjusted follow-up pairwise comparisons showed that both exercisers and non-exercisers showed significantly higher levels of group identity following the high IL condition than the control ($M = 5.40 \pm 1.05$ and $M = 5.60 \pm 1.04$, $p < .001$). All other differences were non-significant ($p > .05$).

3.3.3.2 Mobilisation of Effort (H2).

A mixed ANOVA identified that the levels of mobilisation of effort varied significantly between the high IL and comparison conditions, $F(1,100) = 81.83$, $p < .001$, $\eta_p^2 = .45$. Bonferroni-adjusted follow-up pairwise comparisons suggested that compared to the

control condition, participants in the high IL condition reported significantly higher levels of mobilisation of effort ($M = 5.51 \pm 1.09$ vs. $M = 4.24 \pm 1.34$, $p < .001$); further, there was a significant overall main effect of the exerciser/non-exerciser condition on mobilisation of effort scores $F(1,100) = 2.12$, $p = .005$, $\eta_p^2 = .08$. Bonferroni-adjusted follow-up pairwise comparisons suggested that exercisers reported higher levels of mobilisation of effort than non-exercisers ($M = 5.15 \pm 1.12$ vs. $M = 4.60 \pm 1.25$). In addition, there was a non-significant interaction between the IL (high IL and comparison) condition and the two groups (exerciser/non-exerciser) on mobilisation of effort scores, $F(1,100) = 8.39$, $p = .148$, $\eta_p^2 = .02$

3.3.3.3 Positive and Negative Affect (H3a, H3b).

Results from a mixed MANOVA identified that the two positive and negative affects varied significantly between the comparison and high IL conditions, Wilks' Lambda = .61, F (2, 99) = 32.09, $p < .001$, $\eta_p^2 = .39$. The Bonferroni-adjusted follow-up pairwise comparisons indicated that compared to the comparison condition, participants in the High IL condition reported significantly higher levels of positive affect ($M = 30.5 \pm 10.66$ vs. $M = 22.76 \pm 10.08$, $p < .001$) and lower levels of negative affect ($M = 12.57 \pm 4.49$ vs. 13.46 ± 4.20, $p < .05$). Further, there was a significant overall main effect of the exerciser/non-exerciser condition on positive affect, $F(1,100) = 4.65$, $p = .033$, $\eta_p^2 = .04$, and there was a non-significant effect of the exerciser condition on negative affect, $F(1,100) = .154$, $p = .695$, $\eta_p^2 = .002$. Follow-up pairwise comparisons showed that the exerciser group had higher positive affect compared to the non-exerciser group ($M = 25.53 \pm 9.13$ vs. 20.00 ± 10.31, $p < .05$). In addition, there was a non-significant interaction between the IL (high IL and comparison) condition and the two groups (exerciser and non-exerciser) on the overall PANAS scores, Wilk's Lambda = .95, $F(2, 99) = 2.38$, $p = .098$, $\eta_p^2 = .046$.

3.3.3.4 Intention to Return (H4).

In response to being asked whether or not they would return to the exercise class shown in the comparison and high IL conditions, 53% of the exercise and non-exercise participants said they would return to the control condition exercise class. In contrast, 86% of the exerciser participants and 84% of the non-exerciser participants reported that they would return to the high IL condition exercise class.

Table 5 *Means, standard deviations, and correlations of all variables*

	Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Low ILI – GI	3.87	1.32	-															
2	Low IL – PROT.	4.10	1.35	.49**	-														
3	Low IL – ADV	4.34	1.43	.47**	.75**	-													
4	Low IL –ENTRE	4.15	1.52	.56**	.81**	.85**	-												
5	Low IL – IMP	3.87	1.51	.53**	.73**	.76**	.81**	-											
6	Low IL – MOE	4.24	1.34	.56**	.52**	.66**	.62**	.59**	-										
7	Low IL – POSP	22.8	.996	.65**	.57**	.49	.55**	.63**	.67**	-									
8	Low IL –NEGP	13.5	.420	-.14	-.14	-.31*	-.29**	-.18*	-.24**	.07	-								
9	High IL – GI	5.49	1.04	.38**	.11	.07	.22*	.21*	.18*	.28**	.03	-							
10	High IL –PROT	5.84	.864	.17*	.08	.10	.15	.15	.04	.11	.11	.52**	-						
11	High IL- ADV	6.18	.725	.07	.19*	.21*	.22*	.14	.12	.12	.02	.47**	.73**	-					
12	High IL –ENTRE	6.07	.805	.06	.13	.18*	.20*	.18	.06	.05	.01	.47**	.74**	.82**	-				
13	High IL– IMP	6.07	.808	.06	.20*	.24**	.20*	.18*	.11	.10	.01	.43**	.58**	.76**	.74**	-			
14	High IL – MOE	5.51	1.09	.07	.05	.12	.05	.09	.33**	.27**	.07	.41**	.38**	.47**	.47**	.48**	-		
15	High IL – POSP	30.5	3.06	.18*	.15	-.00	.15	.13	.18*	.55**	.24**	.47**	.31**	.39**	.32**	.31**	.58**	-	
16	High IL – NEGP	12.5	1.26	.05	-.05	-.16	-.05	-.03	-.07	.21*	.63**	-.04	-.10	-.18*	-.18*	-.11	.03	.15	-

Key: Low-IL = control condition, High IL = Identity leadership condition. GI= group identity, PROT – prototypicality, ADV = advancement,
ENTRE = entrepreneurship, IMP – impresarioship, MOE – mobilisation of effort, POSP – positive panas, NEGP = negative panas
** = $p < 0.001$ and * = $p < 0.05$

Table 6 *Statistics for all study variables across the Comparison and High IL Conditions*

Variable	Comparison (Control)			High IL		
	Non-exerciser	Exerciser	Total	Non-exerciser	Exerciser	Total
Group Identity	3.69 ± 1.32	4.05 ± 1.32	3.87 ± 1.32	5.58 ± 1.04**	5.40 ± 1.05**	5.49 ± 1.04**
Prototypicality	3.89 ± 1.37	4.30 ± 1.31	4.10 ± 1.35	5.87 ± .91**	5.80 ± .82**	5.84 ± 0.86**
Advancement	4.09 ± 1.45	4.59 ± 1.39	4.43 ± 1.43	6.25 ± .71**	6.12 ± .74**	6.18 ± 0.73**
Entrepreneurship	3.84 ± 1.65	4.45 ± 1.34	4.14 ± 1.52	6.14 ± .80**	6.00 ± .82**	6.07 ± 0.81**
Impresarioship	3.36 ± 1.49	4.37 ± 1.38	3.87 ± 1.51	6.11 ± .83**	6.03 ± .79**	6.07 ± 0.81**
Mobilisation of Effort	3.87 ± 1.37	4.62 ± 1.20	4.24 ± 1.32	5.34 ± 1.13**	5.68 ± 1.03**	5.51 ± 1.09**
PANAS Positive	20.00 ± 10.31	25.53 ± 9.13	22.8 ± 10.08	29.45 ± 10.86**	31.59 ± 10.46**	30.5 ± 10.66**
PANAS Negative	13.47 ± 3.89	13.45 ± 4.54	13.46 ± 4.20	12.86 ± 4.43	12.08 ± 3.77*	12.47 ± 4.11**

** and * indicates the difference between High IL and Comparison conditions with
** = p < 0.001 and * = p < 0.05

3.4 Discussion

Aligned with the second aim of this thesis, the novel purpose of this study was to identify the extent to which exercise leaders engaging (vs. not) in the four principles of Identity leadership influences the perception of group identity, levels of mobilisation of effort, positive/negative affect, and the intention to return to class, of exercisers and non-exercisers. Confirming the associations found in Chapter 2 (Study 1) of this thesis, the findings of this study supported the hypotheses, indicating that participants responding to the high IL condition reported significantly higher levels of group identity (H1), mobilisation of effort (H2), positive affect (H3a), lower levels of negative affect (H3b) and were more willing to return to the exercise class (H4), compared to the comparison condition. Eighty-five per cent of all participants said they would return to the high IL condition class, compared to fifty three percent of the participants responding to the comparison condition class. Overall, there was no difference in the responses of exercises and non-exercisers to the conditions; however, follow-up pairwise comparisons suggested that exercisers demonstrated overall higher levels of mobilisation of effort and positive affect, compared to the non-exercisers (H5), which makes sense considering that they were regular exercisers, and the role of regular exercise on mood state (Steinberg et al., 1998).

3.4.1 Implications for Theory and Practice

The present study has several implications for the theory as well as practice. First, building on the findings of Chapter 2 (Study 1), this study provided experimental evidence that identity leadership can potentially impact group exercisers' well-being through both perceptions of group identity and the mobilisation of effort. The study was innovative and diverged to some degree from the findings of Chapter 2 (Study 1) in that the response to the two conditions identified that all four principles played a role in exercise group members'

perception of identity leadership and the differences between the conditions were significant. In doing so, the study goes beyond identity entrepreneurship, which has been the focus of more recent experimental (Steven, Rees & Polman, 2019) and correlational (Stevens, White et al., 2022) studies in exercise environments, and suggests that there may be some merit in experimenting with the other identity principles, to increase our understanding of the approach within the context of structured exercise groups. Further, in considering all the individual principles, the study's results corroborated some of the previous findings in the literature (Evans et al., 2021; Platow et al., 1997; Stevens, Rees, Steffens et al., 2019). For instance, the exercise instructor emphasising the group's distinctiveness and putting the group first as part of the principle of identity advancement (i.e., not allowing the class or "in-group" to be momentarily interrupted by someone who was not part of the group), substantiates the previous research which highlights the importance of the identity leader supporting and promoting the group interest, and how "fairness" depends on the intergroup context (Platow et al., 1997).

Secondly, the experimental study was original, showing that it was possible to manipulate all four identity leadership principles within a structured exercise context. Only one recent study within sports has attempted to manipulate all four principles experimentally (Miller et al., 2021), using the verbal description of the principles from the identity leadership questionnaire. This study went beyond this by providing an interpretation of each principle based on the available literature and applying this to the structured group exercise context. In considering all the potential aspects of the (somewhat overlapping) principles, it could be argued that this is more in keeping with the identity leadership approach, which suggests that leadership is secured through the development and maintenance of all four principles (Haslam, Reicher & Platow, 2020; Haslam & Reicher, 2007). Therefore, identity leadership should be viewed as an integrated overall approach. In addition, the importance of

maintaining each principle to ensure the continuation of identity leadership is in part supported by previous studies, which indicate that when individual principles are manipulated and removed, perceptions of identity leadership are reduced (Evans et al., 2021; Reicher and Haslam, 2006). For instance, in a naturalistic experiment with football players, researchers identified that players' trust in their coach significantly reduced when the coach stopped embedding social identities after two weeks of previously embedding the salient social identities of the team (Evans et al., 2021).

Thirdly, identifying and testing the potential behaviours needed for each identity leadership principle based on the available literature encourages a greater understanding of what these principles might look like when applying them in the context of the 3Rs/5Rs identity leadership programmes. While the 3Rs and 5Rs Identity leadership programmes were introduced to circumvent concerns about practical application by providing a structure to apply the four principles, these programmes provide a broad framework as opposed to how to use the model in specific settings (Haslam, Reicher & Platow, 2020). For instance, within the 5R's programme, following being immersed in the model (i.e., *readying*), it is implied that identity leaders should aim to understand the social identities of an exercise group (i.e., *reflect*), act in line with the group's expectations (i.e., *represent*), help create structures to achieve group goals (i.e., *realize*) and then to monitor progress and goals (i.e., *reporting*). Although the general nature of the 3Rs/5Rs programmes makes sense in that the principles will vary according to the context, further research is needed to provide more clarity concerning their application as part of the 5Rs. While some applied identity leadership studies have been conducted in elite sports settings (e.g., Mertens et al., 2020; 2021; Slater & Barker, 2019), and there has been some recent interest in applying the 5Rs shared model in older adult walking groups (Fransen et al., 2022), to date there have been no attempts to apply and deliver the original 5Rs model with appointed group exercise instructors, who are

running structured group exercise sessions. Therefore, with this in mind, researchers should develop and apply the 5Rs identity leadership programme with group exercise instructors based on their understanding of the four principles, to test whether this approach can be applied within these contexts (Rowe and Slater, 2021).

Finally, the study in Chapter 3 was novel in terms of its methodology and the population recruited to participate. The EVM design using photographic slideshows provided an effective way of testing all four principles. In addition, the slideshows appear to have allowed a more realistic and immersive experience beyond that of a written vignette, which is suggested as important when using this method (Aguinis & Bradley, 2014) and goes beyond previous studies in sporting contexts, which have relied more on a written vignette approach (Miller et al., 2021; Slater et al., 2018, 2019). Further, the study attempts to consider the impact of the identity leadership principles on both current "exercisers" and "non-exercisers," with "non-exercisers" defined as those who do not currently take part in the prescribed amount of moderate/vigorous intensive activity, as opposed to focusing only on exerciser populations as found in more recent studies (Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022). The results of the study suggest that the application of the four principles increased perceptions of identity leadership, mobilisation of effort, and well-being in both existing exercisers and non-exercisers, suggesting that identity leadership could play a key role in promoting physical activity with those who do not currently meet physical activity guidelines, the key concern of worldwide exercise and physical activity research. Thus, this utilisation of social psychological theory adds weight to the assertion that it could be advantageous to move beyond predominantly individualistic models of behaviour change within the domain of exercise and physical activity (Grant et al., 2015; Loughead et al., 2001).

3.4.2 Limitations and Future Research Directions

Despite the findings and strengths of this study, there are several limitations. Firstly, the study utilised EVM, a quasi-experimental approach that lacks external validation; however, the study followed EVM best practice (Aguinis & Bradley, 2014), the design provided strong internal validity, and the photographic slideshow allowed for an element of ecological validity. Furthermore, although there is some criticism of the approach in the literature, especially around whether a participant would respond or act differently in real life (Barter & Renold, 2000; Paddam et al., 2010), the content of the scenarios reflected reality as opposed to hypothetical situations. In addition, borrowing from the broader psychology literature, there is evidence to suggest that imagining or visualizing an experience can evoke emotional responses that we would feel in real life (Holmes & Matthews, 2010), a finding which has also been exploited within sports psychology to enhance performance (Cumming & Williams, 2012). Finally, future research could replicate the experiment in real-time with participants in a laboratory setting, although this could provide some challenges (i.e., around control and ecological validity).

Secondly, the study used a student sample, which limits the generalisability of any results; this appears to be a limitation of several other experimental studies in this area (Stevens, Rees, Steffens et al., 2019). However, the study did compare students who were non-exercisers and exercisers, with exercisers defined in terms of adhering to minimum physical activity guidelines. In addition, more recent concerns about the high levels of mental health problems in this population have led researchers to consider exercise's role in improving student well-being (Herbert & Manjula, 2022). Nevertheless, as physical activity and exercise research is charged with finding strategies to encourage defined 'hard to reach' populations to increase their activity, future research could recruit members from these populations rather than utilising a student cohort (i.e., older adults).

Thirdly, although the study provided experimental evidence for identity leadership within structured exercise settings and replicated some of the findings from Chapter 2 (Study 1), the study used a different well-being measure and did not ask specifically for exercisers who were involved in structured group exercise (only that they were engaged in exercise). However, the PANAS measure was more suited to the experimental context, which asked participants for an immediate response to the two conditions regarding positive and negative mood (Watson et al., 1988). Further, the measure has been used in various exercise and health studies to measure well-being in this way (Schmitt et al., 2020) and does infer elements of both mental and physical health (e.g., I feel optimistic and I feel strong). Further, regarding the difference in participants, the second study focused more on defining the groups in terms of those who adhered to minimum physical activity guidelines versus those who did not and their responses to two group exercise conditions. Therefore, whether a participant was a current structured group exerciser was irrelevant.

Finally, the lack of clear guidelines and the interrelatedness of the four principles meant that there was an element of interpretation when operationalising the principles, and assumptions had to be made regarding the exercise instructor in the high IL condition understanding the shared values of the group, which could be viewed as a limitation of the study. However, in operationalising the principles, the study did draw upon the available literature, which included the small number of available sports and exercise studies (Evans et al., 2021; Slater et al., 2018, 2019). In extending this work, researchers could continue to test these principles experimentally and put them into practice within 'real world' exercise contexts using intervention studies. From the findings of Chapter 2 (Study 1) and 3 (Study 2), identity leadership appears to have the potential to impact mental well-being and physical health directly; therefore, researchers could consider training group exercise instructors to

promote the four principles of identity leadership in the form of the original 5Rs of leadership (Haslam, Reicher & Platow, 2020).

3.4.3 Conclusion

In addressing the second aim of this thesis, the findings reported in Chapter 3 (Study 2) support the hypotheses that an exercise instructor engaging in the four principles of identity leadership shapes a sense of group identity and influences levels of mobilisation of effort, well-being and the potential intention to return of group exercisers. Further, both exercisers and non-exercisers appear to have been positively impacted by an exercise instructor taking this approach. Although this chapter supports the evidence for the associations found in Chapter 2 (Study 1), unlike in the previous chapter, all four principles appear to have played a part in this process, as opposed to emphasising entrepreneurship and, to some extent, prototypicality (as part of the hierarchical regression and mediation models). These findings also extend the literature by applying the four principles of identity leadership to a structured exercise context and utilising a novel methodology. Chapter 4 (Study 3) will build on the findings of this current chapter by exploring the four principles and the identity leadership model further by attempting to apply the 5Rs of identity leadership with group exercise instructors in practice. In doing so, the study will first train instructors to apply the model with their exercise groups and review the approach's efficacy by considering its impact on group exercisers' perceptions of group identity, mobilisation of effort, mental well-being, physical health, and fitness levels.

CHAPTER 4: KEEPING "US" FIT AND WELL: APPLYING THE 5R'S OF IDENTITY LEADERSHIP TO THE STRUCTURED GROUP EXERCISE ENVIRONMENT

4.1 Introduction

Chapter 3 focused on the second aim of the thesis and supported the hypotheses that an exercise instructor engaging in the four principles of identity leadership can shape a sense of group identity and influence various outcomes. In sum, it was identified that all four principles appear to have played a part in this process, as opposed to emphasising the importance of entrepreneurship and prototypicality, which is discussed in the wider literature and Chapter 2's findings. Behaviours for each principle were extrapolated from what is understood from existing studies, and it appears that the application of these significantly increased group identity, mobilisation of effort, and positive affect, as well as encouraging a return to the group and reducing negative affect; both exercisers and non-exercisers responded positively to the approach. Addressing the third aim of this thesis, Chapter 4 looks to extend the findings of Chapter 3 by moving beyond an experimental design and attempting to apply the four principles in practice with an intervention study based on the original 5Rs programme. In doing so, Chapter 4 will develop the approach with group exercise instructors who are leading structured exercise groups with potentially harder-to-reach populations (i.e., a population that struggles to meet minimum physical activity/exercise requirements) and will consider the efficacy of the intervention in terms of its impact on group identity, mobilisation of effort, mental well-being, physical health, and fitness levels.

Despite the extensive literature suggesting that the four principles of identity leadership can influence follower behaviours and beliefs through the advancing, shaping, and embedding of mutually shared values and ideals (Haslam, Reicher & Platow, 2020), there have been few attempts at developing and applying the model as an intervention. Instead, the majority of the empirical research consists of controlled experimental studies, which tend to

focus on one of the four principles of identity leadership (i.e., predominantly that of prototypicality), and the analysis of the leadership styles of famous leaders to illustrate the principles of identity leadership (Haslam, Reicher & Platow, 2020). In response to concerns about how to apply the model in practice, the approach has been operationalized based on the four principles of identity leadership literature and what was learned from the BBC Prison Study (Haslam & Reicher, 2007) by first creating the 3Rs, and, more recently, the 5Rs of identity leadership (Haslam, Reicher & Platow, 2020; Haslam et al., 2017).

Acknowledging that effective leadership is based on the foundations of a social identity created and enhanced by the leader *with* the group, the 3Rs provided a broad developmental strategy comprising the three stages of *Reflecting, Representing*, and *Realising*. More recently, the model has been renamed the 5Rs, introducing two additional stages of *Readying* and *Reporting*. Further, a modified 5Rs, the shared 5Rs leadership model, developed for sporting contexts, focuses on four specific leadership roles (task, motivation, social and external leader roles), which are considered essential for sports teams' success (Fransen et al., 2014). Unlike the original model, the shared 5Rs stresses the value of shared emerging leadership, in which the various leadership roles are allocated to those deemed to have the prerequisite skills within the group (Fransen et al., 2020). Although the 3Rs/5Rs provide a welcome addition to the identity leadership literature, it is still in its infancy, and the outcomes of any applications are somewhat mixed (Haslam et al., 2017; Fransen et al., 2020; Slater & Barker, 2019). Only a handful of studies have attempted to apply any version of the model, with the available literature focused on organisations (Peters et al., 2013; Peters et al., 2014; Fransen et al., 2020) and in more recent times on sporting settings (Slater & Barker, 2019; Fransen et al., 2020; Mertens et al., 2022; 2021). Although there is one very recent study that applies shared 5R*s* identity leadership to peer leadership in newly formed walking groups (Fransen et al., 2022), there have been no attempts so far to apply the

approach to traditional instructor-led exercise groups, which is cited as one of the most popular methods of formal exercising (Thompson, 2019).

Considering the application of the 3Rs/5Rs, it is argued that the identity leadership intervention goes beyond a traditional classroom didactic approach to leadership training and encourages leaders to apply their knowledge in real-world contexts and to include the involvement of members of the groups they lead (Haslam et al. 2014). Additionally, the various stages of the model provide a framework to foster this process; however, the framework is broad, and there has been a lack of clarity regarding how to interpret and apply the different stages in practice and within different contexts. Replicating earlier attempts to use the 3Rs within organizational settings (Haslam et al., 2003; Peters et al., 2013), most intervention studies have tended to focus on identifying and developing identities and goals utilising a mixture of workshops and group exercises (Haslam et al., 2017; Fransen et al., 2020; Slater & Barker, 2019). For instance, in a study by Fransen et al. (2020), researchers delivered three workshops covering the 5Rs of shared identity leadership within an organization and sports team setting. Further, recently, to aid its application, there has been a suggestion that applied researchers should consider the Groups4Health model of delivery, which involves a social identity intervention effective for combatting loneliness and poor mental and physical health in randomized control trials (Haslam et al., 2016, 2019). Employing a manualized five modular programme that covers the areas of *Schooling, Scoping, Sourcing, Scaffolding,* and *Sustaining*, the *Sourcing* module introduces a social identity mapping exercise(Cruwys et al., 2016), in which participants are asked to consider all the social/group identities that are important to them, allowing them to reflect on their current levels of social functioning and opening up possibilities to develop this further. In particular, this module of the Group4Health programme has been replicated in some form or other in many of the applied studies as part of the *Reflecting* stage, in which the leader is attempting

to understand the social identities and goals of group members (Fransen et al., 2020; Mertens et al., 2020; 2021; Slater & Barker, 2019). Apart from this, the application of the approach appears to rely on the interpretation of the various steps based on the four identity leadership principles and the processes and context involved in its application (Haslam, Reicher & Platow, 2020).

In reviewing the available intervention studies, only one produced by Slater and Barker (2019), which applied the 3Rs within elite disability football as part of a one-group pre-and post-test longitudinal study, appears to give more detailed guidance concerning the main *Rs* of the approach. This study explored the efficacy of the 3Rs model and the impact of the intervention on several variables, including group identity and the mobilisation of effort. Consisting of workshops and establishing a senior leadership team (SLT), the 3Rs was run twice over a two year period. In addition, various exercises were included in the programme, including two identity mapping activities at the *Reflecting* stage, to encourage group members to draw a map of "their significant identities" and to consider the values and goals associated with being part of the team. Also, there was the implementation of vision statements, posters, and cue cards reflecting the values and their related behaviours as part of the *Realizing* stage. Marginal to significant increases were identified post-intervention in social identification, identity leadership, and hours practised away from training camps. However, there was no increase in mobilisation of effort in both years of the study (Slater & Barker, 2019).

More recently, within exercise settings, the 5Rs shared leadership programme has been applied as part of a 12-week cluster randomized control trial applied to walking programmes for older adults. Involving a 2-hour workshop covering the first four stages of the approach, a simplified shared leadership mapping exercise, and phone call check-ins and review meetings with the appointed peer leaders as part of the *Reporting* stage. Researchers

found that the 5Rs shared approach increased group cohesion and walking activity compared to the control group; however, group cohesion and well-being increased to a similar extent in both conditions, which may be partly a result of the cohorts already being known to each other, as participants were recruited through an organization that promotes a range of physical activities (Fransen et al., 2022). Despite these inconclusive results, the findings are promising for developing peer-led walking groups in older adult populations and add to an extremely sparse literature in which only a few studies have attempted to apply and fully or partly test a leadership approach in an exercise or physical activity setting (Beauchamp, Welch & Hulley, 2007; Ntoumanis et al., 2017). Acknowledging that exercise leaders can play an important role in motivating and encouraging exercisers (Bray et al., 2005; Killingbeck et al., 2017) and that exercise may be more effective in group settings (Burke et al., 2006), additional applied studies are needed.

Considering this need and the available identity leadership research, it is evident that the original 5Rs model has not been applied to structured exercise groups led by a group exercise instructor (e.g., older adults' strength and balance classes or Zumba Gold). Further, due to the designated leadership structure of these groups, the original 5Rs programme appears to be a better fit than the 5Rs shared model. Therefore, can the original 5Rs leadership programme be delivered to group exercise instructors who instruct and lead structured exercise groups, and what would be the impact of the approach on the desirable outcomes of group exercise, including those relating to the mobilisation of effort, mental well-being, physical health, and fitness levels?

4.1.1 The Current Study and Hypotheses

Chapter 4 (Study 3) provides an addition to the literature in that it is the first study to develop and empirically test the original 5Rs identity leadership model (Haslam, Reicher &

Platow, 2020), with group exercise instructors leading groups within structured group exercise environments. Few attempts have been made to apply the original 5Rs model, and the application of identity leadership theory is essential to the continual development of the approach (Haslam, 2014; Haslam, Reicher & Platow, 2020; Slater et al., 2014). Apart from the recent Fransen et al. (2022) study, much of the available identity leadership research concentrates on teams and sporting contexts and applies the 5Rs shared identity leadership model (Fransen et al., 2022; Mertens et al., 2020, 2021). Further, in the general exercise psychology literature, despite identifying the importance of exercise instructor leadership, only a handful of studies have tried to practically apply a leadership model to the exercise environment (Beauchamp, Welch & Hulley, 2007; Ntoumanis et al., 2017), addressing the fifth aim of the thesis; therefore, this study extends both the identity leadership and general exercise psychology literature. Additionally, the study is novel as the current research was conducted during the COVID pandemic, allowing the researcher to test whether the intervention could be developed and conducted online with group exercise instructors, which addresses the fourth aim of the thesis.

As well as developing a 5Rs identity leadership programme in this setting, the study considers the effectiveness of the intervention and the extent to which an exercise instructor can encourage greater group identity by embodying the four principles of identity leadership (prototypicality, advancement, entrepreneurship, and impresarioship). Further, with the potential of the identity leadership approach to influence and shape follower behaviour and beliefs, the study was also interested in evaluating the extent to which exerciser instructor leadership could influence group members' perception of mobilisation of effort, mental well-being, physical health, positive and negative affect, and improve objective fitness markers. In terms of the chosen participant group, with the older adult population estimated to increase to 1 in 6 worldwide, and concerns regarding the levels of activity in this group (WHO, 2017), as

well as the call for physical activity leaders to work with inactive populations (Stevens, Cruwys & Olive, 2022), the study focuses on exercise instructors who lead older adult groups. The following hypotheses were considered:

- The exercise instructor engaging in the 5Rs will increase the group exercisers' perceptions of the leader engaging in the four principles of identity leadership from pre to post-intervention (H1).

- The exercise instructor engaging in the 5Rs will increase group exercisers' perceptions of group identity (H2a) and mobilisation of effort (H2b) from pre to post-intervention.

- The exercise instructor engaging in the 5Rs will increase group exercisers' mental well-being (H3a), physical health (H3b), positive affect (H3c), and reduce negative affect (H3df) from pre to post-intervention.

- The exercise instructor engaging in the 5Rs will increase group exercisers' fitness scores from pre to post-intervention (H4).

4.2 Method

4.2.1 Participants and Design

The participants were two group exercise instructors who were currently involved in running older adult exercise groups. The inclusion criteria for the study were that participants needed to: (i) be qualified instructors; (ii) have access to leading an exercise group for the duration of the study; (iii) recruit one of their existing classes to be part of the study; (iv) collect questionnaires, attend workshop training sessions and to give a post-intervention interview.

Following ethical approval, the UK was in lockdown due to COVID, and group exercise groups were not running. Due to this, and with COVID providing the opportunity to

evaluate the application of an identity leadership intervention using a novel method, it was decided to conduct the study at a distance with exercise instructors from New Zealand. At the time of recruitment at the beginning of January 2021, all exercise groups in New Zealand were running as usual and were not impacted by COVID; therefore, the research study was advertised on an exercise instructor's Facebook group in New Zealand, and two instructors contacted the researcher through this and volunteered to participate. The instructors were female, with an average age of 57 and over 30 years of experience running exercise groups. Both identified as Kiwi/European.

Once recruited, the exercise group instructors identified one of their existing older adult groups who consented as a group to take part in the study. Existing groups were used in this community-based study, as in a previous attempt to apply the 3Rs (Wood, Division of Sports, and Exercise Psychology Conference, 2016), existing groups had responded to the intervention. Exercise Instructor A recruited Group A, a dance fitness class with 19 members; Exercise Instructor B recruited Group B, a strength and balance fitness class with 12 members. All exercisers were over 65 (Mage = 72 SD: 4.5), and 99% were female. 100% of the exercise participants identified as Kiwi/European.

The study utilized a repeated measures design over eight weeks, with pre-and post-measures taken. Other designs were considered, including a non-randomised cross-over design to introduce a greater level of control; however, this was not possible. Further, due to availability and the need to provide intensive support, the intervention was delivered first to Group Instructor A for eight weeks and then to Group Instructor B for the following eight weeks; therefore, the study lasted for 16 weeks in total. The study was designed in keeping with other leadership and psychological skills intervention studies, which normally run between 8 and 12 weeks (Dunlop & Beauchamp, 2011; Peters et al., 2013), and also to fit with the availability of busy fitness professionals. Based on other identity leadership

interventions (Fransen et al., 2020; Slater & Barker, 2019; Mertens et al., 2020, 2021), the study involved the delivery of a series of educational workshops delivered to the exercise instructor, who then integrated identity leadership strategies into their group exercise sessions. Exercise group members were then asked to complete several questionnaires to review the impact of the identity leadership intervention in Week 1 and Week 8.

A Priori G*Power (v 3.1.6) (Faul et al., 2007) difference between two dependent means (2 groups) t-test calculation (α error probability = 0.05, $1 - \beta$ error probability = 0.80) estimated a minimum total sample of at least 27, which suggested that it was possible to conduct inferential statistical analysis.

4.2.2 Measures

After giving informed consent and completing demographic information, participants responded to several questionnaire items; due to the demographic, these were completed on paper copies after the class in Week 1 and Week 8. All the measures from Chapter 2 (Study 1) and Chapter 3 (Study 2) were used: (1) Group Identity (α = 0.76); (2) Identity Leadership (prototypicality α = 0.80, advancement α = 0.83, entrepreneurship α = 0.87, impresarioship α = 0.75); (3) Mobilisation of Effort (α = 0.73); (4) Warwick-Edinburgh Mental Health well-being (α = 0.94); (5) Positive (α = 0.88) and Negative affect (α = 0.90); and the one item Physical Health measure. In addition, the study evaluated the programme using a behavioural fitness test and social validation data as follows:

4.2.2.1 Fitness Markers

As part of a strategy to triangulate multi-measures, the researcher, in collaboration with each instructor, identified an appropriate fitness marker for each group to provide a behavioural measure to signify actual effort. Both exercise instructors decided to use a timed

sit-to-stand test with their groups, a valid and reliable test to ascertain lower body strength and endurance in older adults (Jones et al., 1999).

4.2.2.2 Social Validation Data.

At the end of the intervention, group exercise members completed a short validation questionnaire. As suggested in the literature (Martin et al., 2004), as part of this process, participants were asked a series of questions, including how they had found taking part in the study and if they had noticed anything different about the exercise instructor (see Appendix 3 for social validation questionnaire). In addition, to allow for greater reflection, the instructors took part in a semi-structured interview, which took place a month after the end of the intervention period, during which they were asked questions about the acceptability of the study, their participation, what they had learned from the model, and if they were still using the intervention (See Appendix 3 for the interview schedule).

4.2.3 Procedure

4.2.3.1 Pre-Intervention Stage

Initially, each instructor received an information pack informing them about the nature of the study and its aim to test the effectiveness of a leadership intervention for group exercise instructors (see Appendix 3). After initial discussions with the researcher, formal consent was given; instructors then provided information about the study to their chosen groups, whose members provided written informed consent in Week 1 and completed the pre-intervention data set. Finally, identifiers were allocated to each group participant to match their responses across time points (ensuring the data remained confidential and anonymous).

4.2.3.2 Intervention Phase

During the intervention phase, the group exercise instructors attended three workshops that lasted up to 90 minutes and covered the 5Rs of identity leadership. These

occurred within 24 hours after the Week 1, Week 3, and Week 6 sessions. At the end of Week 8, group exercise members completed the post-intervention data set and provided social validation data in the form of a questionnaire (see Appendix 3). In addition, both the exercise instructors had post-intervention interviews a month after the end of the intervention stage.

The development of the study intervention is based on the 5Rs of identity leadership (Haslam et al., 2017; Haslam, Reicher & Platow, 2020) and studies that have applied the 3Rs/5Rs approach in sport (Fransen et al., 2020; Slater & Barker, 2019). Further, in line with the suggestion of how to apply the 5Rs protocol, the study also considered the Groups4Health research, which applied social identity theory to groups to improve health and well-being (Haslam et al., 2019) and the work on developing team togetherness (Slater, 2019). A detailed overview of each stage is shown in Table 7, and the purpose of the next section is to give a brief overview of the aim and rationale of each stage:

4.2.3.2 1 Workshop 1

Stage 1 Readying. In the first *Readying* Stage, participants are introduced to the identity leadership model, raising awareness of the importance of the group and social identity processes for effective leadership (Haslam et al., 2017; Haslam, Reicher & Platow, 2020). This stage sets the scene for future stages, encourages engagement, and allows participants to understand the model better. The Groups4Health studies found that a preparatory phase was crucial in delivering the social identity group interventions (Haslam et al., 2016, 2019).

The aim of the *Readying* Stage in the first workshop was to enable the group exercise instructors to develop a general understanding of leadership and the identity leadership model. The focus was on discussing what leadership is, the background to the identity

leadership model, and raising awareness of the importance of "we" and a shared sense of "us" and how group membership can encourage well-being and effort.

Stage 2 Reflecting. The *Reflecting* Stage aims to help the leader better understand group members and their identities, values, and goals. Part of this involves a process of social identity mapping (and shared leadership mapping with the 5Rs shared model), in which group members are asked to identify the group or groups they identify most strongly with (Cruwys et al., 2016; Haslam et al., 2017; Slater & Barker, 2019; White et al., 2020). Within the organizational and sporting literature, this stage appears to revolve around this exercise; however, this seems too narrow for formal exercise contexts with a designated leader. The principle of *prototypicality* is part of the *Reflecting* stage, which involves both the leader being seen as part of the "in-group" as well as understanding the group's identities, values, and goals (Reicher & Haslam, 2006; Haslam, Reicher & Platow, 2020).

With this in mind, in the first *Reflecting* workshop, the focus was to help the exercise instructor be seen as part of the group, to allow them to understand the group better, and to encourage a sense of a shared group identity. As discussed by Slater et al. (2014, 2016), there appear to be parallels between developing understanding and connection with the group and person-centred counselling (Rogers, 1980). Therefore, the workshop included psychoeducation around active listening, appropriate self-disclosure, engaging with the class before and after the session, matching dress/language, and participating in the exercise group where possible. Further, there was a discussion regarding the importance of a social identity mapping exercise for the instructor to learn more about the group members, their different group identities, goals, and values around exercising and life in general. As part of the workshop, the exercise instructor, aided by the researcher, planned how to undertake this exercise. As a result, it was agreed that a simplified social identity mapping exercise would be conducted after the Week 3 exercise session, with the exercise instructor asking the

following questions (and giving their responses as part of this) based on those suggested by Slater (2019):

1. What other groups are you members of?

2. Why did you join this exercise group?

3. What do you value about being part of this exercise group?

4. What do you hope to achieve from being in this exercise group?

5. What makes this exercise group special?

Regarding the process, it was agreed that the questions would be put on flip chart posters, and that the group members would be given sticky notes to write down their answers and place them on posters. This method was used to encourage participation and for the exercise instructor to engender a sense of togetherness, support, and mutual understanding (Dunn & Holt, 2004). In addition, group members would also be able to read the comments made by other group members and those of the exercise instructor.

At the end of the workshop, the exercise instructor decided which Reflection strategies to implement over Weeks 2 and 3 of the study, including completing the social identity mapping exercise after the Week 3 session.

4.2.3.2.2 Workshop 2

Stage 3 Representing. The *Representing* Stage involves defining who "we want to be" by articulating the goals and values of the shared identity of the group, clarifying group goals, and understanding any barriers to these (Haslam et al., 2017; Haslam, Reicher & Platow, 2020). Again, the principles of *Advancement* and *Entrepreneurship* appear to underpin this stage; therefore, *Representing* also focuses on encouraging a sense of group identity, putting the group first, and developing and promoting the goals and values of the group.

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Therefore, following a review of applying Reflecting in the previous sessions, the second workshop involved developing strategies around emphasizing "we" and "us" language, using the catchphrases and language of the group, and modelling the core values in the group. Also, the instructor was encouraged to compare the exercise as an "in-group," those who had chosen to come to the class as opposed to the "out-group," e.g., those who decided to stay at home and watch television, to reinforce a sense of the social identity of the group. This second workshop also included a discussion regarding the social mapping exercise, with the researcher providing an analysis of the responses of the exercise group members (e.g., cloud diagrams and posters) and the identification of common values and goals. From this, it was agreed that these values and goals would be shared in the form of posters produced by the researcher, with the exercise instructors feeding back to the group in the next session (including asking for further comments) and for the posters to be displayed in each class (Slater & Barker, 2019) (see Appendix 3 for an example).

Stage 4 Realising. In the fourth stage of the model, the leader aims to embed the shared group identity and goals to enable the group's success. Within an organizational environment, *Realizing* emphasizes the importance of shared social identity for employee health and well-being (for example, as discussed by Steffens et al., 2014, 2017). It explains how leaders can facilitate this process by bringing sub-groups together to discuss their distinct goals and strategies, identify sub-goals, and prioritize strategies to implement them (Haslam et al., 2017). Within the structured exercise environment with group instructors, who use their expertise to develop class content and ensure the safety of group members, it is the responsibility of the instructors to lead and coordinate this process and to focus on exercises and goals that fit the group's values, to embed the group's identity further.

As part of this stage in the second workshop, the aim was to ensure that the posters produced as part of the representing stage were displayed as part of the representing stage

were displayed during the sessions, and that the exercise instructor-led activities/exercisers aligned with the group's goals and shared values. Therefore, following an introduction to *Realising,* there was a discussion around several possible strategies, including ensuring that class content was linked to the goals/values of the group (e.g., where a value/goal is to have fun, to ensure that there are "fun" exercises as part of the session), encouraging feedback from the group to make sure that the sessions were matching values/goals, and taking more of a bottom-up approach, by asking for suggestions from the group, e.g., "are there any exercises that you would like us to practice today?" (Fransen et al., 2020; Slater & Barker, 2019). Other strategies included encouraging the group in line with group goals (e.g., keep going, we are making great progress here with our fitness goals).

The agreed strategies from the *Representing* stage were implemented in Session 4, and then the strategies relating to the *Realising* stage were introduced in Session 5. At the end of the workshop, it was also emphasized that it was important to continue to *Reflect* as part of the leadership process.

4.2.3.2.3 Workshop 3

Stage 5 Reporting. During the *Reporting* stage, leaders consider "are we what we want to be" and evaluate the progress towards identified goals and the effectiveness of the various strategies. Discussed in terms of "closing the loop," the session ensures that the lessons, objectives, and goals of the 5Rs are embedded and allows the leader the opportunity to reflect on the process and to problem-solve any difficulties or issues (Haslam, 2017; Mertens et al., 2021; Fransen at al., 2022).

The final workshop concentrated on this stage and looked to monitor the progress of the group's goals and the implementation of the agreed strategies at each 5Rs stage, allowing an element of reflection and troubleshooting. There was a general review of what the exercise

instructor had implemented so far and the programme in general, and a suggestion that the exercise leader encourage the group also to give feedback. Once again, it was reiterated that the exercise leader should actively keep up with the strategies that had been introduced in all the previous 5Rs stages.

Table 7 *Identity Leadership for Exercise Instructors Intervention*

Workshop	Delivery	Stage	Specific Interventions
1 – Readying and Reflecting	**After Week 1 Session**	**Readying** *Aim* to develop an understanding of leadership and the Identity leadership model. *Content* Primarily psychoeducation covering the topics of What is leadership? Introduction to the identity leadership model, the 5Rs. Raising the importance of "we" and a shared sense of "us" and that a strong sense of belonging to a group encourages well-being, commitment, and effort.	**Psychoeducation** (Haslam et al., 2020; Haslam et al., 2017; Haslam et al., 2016; Fransen et al., 2020; Cruwys et al., 2016; Mertens et al., 2021).
		Reflecting *Aim* to better understand the group, group members' goals, and what they value/what is important to them in an exercise context. To allow the group to start to see the instructor as one of them and as part of the group. *Content* Helping the instructor develop/skills and strategies to help with this process, e.g., talking and engaging with the group before and after class, using active listening and self-disclosure, matching the group, and taking part in the exercises where possible. Also, to learn more about the group, their goals, values, and life in general.	**The leader being accepted as prototypical/one of the group** (Haslam, Reicher & Platow, 2020; Slater et al., 2014, 2016; van Knippenberg, 2011; Steffens et al., 2020), engaging with the group before and after the session, appropriate self-disclosure, observing, use of active listening, matching group members (in terms of speech and dress), taking part in the exercises where possible. **Understanding the values/goals and identities of the group members** (Cruwys et al., 2016; Fransen et al., 2020; Haslam et al., 2017, Haslam et al., 2003; Slater & Barker, 2019; White et al., 2020) conducting a social mapping/values exercise during or after an exercise class.

| 2 – Representing and Realising | After Week 4 Session | **Representing**
Aim to encourage a sense of the group and being part of this, putting the group first and promoting the group's values and goals, etc.

Content Helping the exercise instructor to implement strategies to encourage this, including the use of "we" and "us" language, group mottos/catchphrases, communicating the group's shared values using posters, WhatsApp, Facebook, modelling the group values (e.g. if the group values support, for the leader to demonstrate this with the aim of being the most supportive), discussing the group in terms of being an in-group compared to the out-group and those who do not exercise) | *Using "we" and "us" language* (as opposed to "you" and "me" (Fransen et al., 2020; Haslam, Reicher & Platow, 2020; Haslam & Reicher, 2007; Stevens, Rees, Steffens et al., 2019)

Instructor to identify and develop ways of communicating the shared values/goals of the group (Slater & Barker, 2019), e.g. using posters, WhatsApp or closed Facebook groups.

Instructor to model/represent core values of the exercise group dependent on the values and the group) e.g. fun, being supportive etc.

Instructor to compare the in-group with the out-group (Haslam, Reicher & Platow, 2020; Platow et al., 1997; Reicher & Haslam, 2006) |
| | | **Realising**
Aim to lead activities that align with the group's goals and shared values.

Content Helping the instructor to ensure that the exercises link to the values and goals to encourage the group's involvement with exercise content decisions. | **Instructor to continue to refer to the shared values/goals of the group** (Slater & Barker, 2019), e.g. using posters, WhatsApp or closed Facebook groups.

Instructor to ensure that the exercise sessions link to the values/goals of the group, e.g. if people value fun to include "fun" exercises

Encourage feedback from the group to ensure that the sessions match values and goals and ask for suggestions from the group during the |

			sessions – taking a bottom-up approach (Fransen et al., 2020; Slater & Barker, 2019). **Give praise and encouragement in line with shared group goals/values,** e.g. the group is working well towards getting fitter.
3 – Reporting	**After Week 6**	*Aim* to monitor progress towards the goals/values of the group and to troubleshoot any problem areas. *Content* to encourage the exercise instructor to reflect upon how the group is doing, getting feedback re-matching shared goals/value	**Monitoring the progress of the group by asking for feedback and further input from the group** (Fransen et al., 2020; Haslam et al., 2017; Mertens et al., 2021)

4.2.4 Intervention Delivery Protocol

As in previous studies (Fransen et al., 2020), the researcher delivered three workshops covering the five stages of identity leadership following Weeks 1, 3, and 6 of the intervention. Each workshop lasted up to 90 minutes, was conducted over Zoom and recorded for the participants. To ensure consistency, the researcher used the following content protocol for each workshop:

1. Explain the session Agenda.

2. Reflection to allow discussion around what leadership is (as in the first workshop) or reflection on the previous workshop and the implementation of strategies of the prior week

3. Presentation of the 5Rs' Stages, its aim, and the related strategies (what it means in practise)

4. Discussion, agreement, and planning of which strategies to implement in the following group sessions

5. Recap and review the session

6. Answering any questions that the participant may have.

As part of the delivery, the researcher met with the exercise instructors before the start of the intervention to answer any questions regarding participation and post-intervention; both exercise instructors were also offered email support throughout the eight weeks of the study. After every workshop delivery, the researcher sent a full synopsis of the workshop session, the slides from the session, and what had been agreed, and every week, a reminder email was sent two days before the exercise instructors were due to meet with them. In addition, a further email was sent immediately after the group sessions asking for feedback and inviting the exercise instructors to ask for further help or input if there were any questions or difficulties. Due to availability, the researcher trained and supported/coached exerciser

instructor A in the first 8-weeks of the study, whilst exercise instructor B ran their group as usual. After the first eight weeks, the support/coaching for exerciser instructor A ended, and then exercise instructor B was trained and supported/coached for eight weeks. Both exercise instructors were then interviewed a month after the end of the 8-week intervention to allow them time to reflect on their experiences of applying the intervention.

4.2.5 Procedural Reliability

Both exercise instructors received the same intervention; the workshops were standardised (see Appendix 3 for an example) and conducted at the same time during the period of the 8-week intervention. Further, the support given was identical regarding the number and timing of email reminders and follow-ups. Unfortunately, it was not possible to tape and analyse individual sessions to test for fidelity to the model; however, there were many recaps and reviews of progress, which indicated that the model was implemented as agreed, and the participants were experienced professionals who had offered to take part and appeared engaged with the process of delivering the intervention.

4.2.6 Analytic Strategy

Data analysis included four stages: (1) preliminary screening; (2) descriptive and correlational statistics; (3) matched t-tests and MANOVAs, which were dependent on the number of correlated sub-scales of each variable (e.g., the ILI inventory has four correlated sub-scales, therefore a MANOVA was the test utilised); and (4) analysis of the social validation data.

The analysis of the social validation data was two-fold. First, the group exercise participants' questionnaire responses were collated and quantified. Second, as in the study by Evans et al. (2022), the interviews of the two exercise instructors were analysed using the 6-phase protocol thematic analysis outlined by both Terry et al. (2017) and Braun and Clarke

(2019). As part of this process, in phase 1, the researcher familiarised themselves with the data by transcribing it verbatim, reading and re-reading it, and making notes and ideas for coding. Next, in phase 2, some initial codes were generated for the whole data set, with data then being matched to these initial codes. Then in phase 3, the researcher started to construct overarching themes by collating and collapsing the codes, and in phase 4, the themes went through a second iteration and were reviewed and refined. Finally, in phase 5, the themes were defined and named before producing a final analysis and report of the findings in phase 6.

4.3 Results

4.3.1 Preliminary Analysis

As part of a preliminary analysis, data was screened for missing data, outliers, and distribution. Three participants could not attend Session 8 due to illness/injury and were removed from the data set. In checking for missing data, across the variables there was 0.09% of missing data, and expectation maximization (EM) was used to estimate the missing values, providing a complete dataset (Field, 2017). All outliers with z scores over the value of 2 were winsorized (Miller et al., 2020; Smith, 2011); .88% of the data was winsorized. As expected, with the type of measures used in the study, the data did not assume a normal distribution, with most of the variables indicating moderately skewed distributions, with scores clustering at the high or low ends of the scale. Overall correlations, group means, standard deviations, percentage change, pre, and post-intervention, and effect sizes, are presented in Tables 8 to 10 below.

4.3.2 Main Analysis

H1 Identity Leadership

A one-way repeated measure MANOVA was conducted to compare the scores on the Prototypicality, Advancement, Entrepreneurship, and Impresarioship subscales of the Identity Leadership Inventory (Steffens et al., 2014). The findings indicated that there was a non-significant effect between the scores, Wilks' Lambda = .76, $F (4, 24) = 1.87$, $p = .15$, $\eta^2 =$ .24. However, the overall means pre and post-intervention suggest that there was a shift in all the identity leadership principles: prototypicality (6.65 to 6.80), advancement (6.85 to 6.90), entrepreneurship (6.71 to 6.88) and impresarioship (6.62 to 6.85). The principles of entrepreneurship and impresarioship showed medium effect sizes of 0.5 and 0.6, respectively.

The ILI for instructors, which could not be statistically tested, indicated overall that between Week 1 and Week 8 of the study, there was a shift in the means for prototypicality (5.4 to 6.0), indicating a large effect size of 0.9 and for entrepreneurship (6.0 to 6.4), suggesting a large effect size of 0.8. However, there was no shift in the advancement and impresarioship principles.

H2a Group Identity

A paired t-test was conducted to identify the impact of the intervention on the group exercise participants' perception of group identity. No significant differences were found between the Week 1 and Week 8 scores (t(27) = .76, $p = .46$). However, there was a positive shift in the means (6.26 to 6.44), which produced a small effect size of 0.2.

H2b Mobilisation of Effort

A paired t-test was conducted to test the impact of the intervention on the group exercise participant's perception of mobilisation of effort. No significant differences were identified between the Week 1 and Week 8 scores (t(27) = -.58, $p = .95$).

H3a Mental Well-Being

A paired-t test was conducted to compare the impact of the intervention on the group exercise participants' perception of mental well-being. No significant differences were found between the Week 1 and Week 8 scores (t(27) - .78, $p = .44$). However, there was a positive shift in the means (54.06 to 56.43), which produced a small effect size of 0.3.

H3b Physical Health

A paired t-test was conducted to compare the impact of the intervention on the group exercise participants' perception of physical health. No significant differences were found between the Week 1 and Week 8 scores (t(27) - .94 $p = .36$).

H3c & H3d Positive and Negative Affect

A one-way repeated measures MANOVA was conducted to compare the impact of the intervention on the group exercise participants' perception of positive (H3c) and negative (H3d) affect. No significant differences were found between Week 1 and Week 8, Wilks' Lambda = .84, F (2, 26) = 2.50, $p = .10$, $\eta^2 = .16$. However, there was a shift in means of negative affect (12.61 to 10.71), which produced a large effect size of 0.7.

H4 Fitness

A paired t-test was conducted to test the impact of the intervention on fitness scores for the sit-to-stand test. There was a statistically significant increase in Fitness scores from Week 1 (M = 20.10, SD = 8.56) to Week 8 (M = 22.29, SD = 5.82), t(27, 2.41, $p < 0.23$. The mean increase in Fitness scores was 2.18, with a 95% confidence interval ranging from .32 to 4.03. The eta squared statistic of .18 indicated a large effect size.

Table 8 *Correlations between dependent variables across Pre and Post-Intervention*

	1	2	3	4	5	6	7	8	9	10
Variables Pre-Intervention										
1. Group Identity	-									
2. Prototypicality	.33	-								
3. Advancement	.21	.55**	-							
4. Entrepreneurship	.18	.30	.63**	-						
5. Impresarioship	.57**	.41*	.41*	.45**	-					
6. Mobilisation of Effort	.50**	.26	.12	.19	.35*	-				
7. Mental Well-Being	.94	.04	.07	.23	.17	.49**	-			
8. PANAS Pos	.57**	.20	.17	.28	.25	.55**	.39*	-		
9. PANAS Neg	-.50**	-.19	-.10	.22	-.13	-.35*	-.17	-.26	-	
10. Physical Health	-.28	.17	.12	.27	-.11	.04	.41*	.09	.12	-
11. Fitness	.27	-32*	-.07	.0.3	.15	.42**	.34*	.20	-.29	-.14
Variables Post-Intervention										
1. Group Identity	-									
2. Prototypicality	.33*	-								
3. Advancement	.32*	.79**	-							
4. Entrepreneurship	.19	.50**	.77**	-						
5. Impresarioship	.03	.56**	.79**	.77**	-					
6. Mobilisation of Effort	.31	.16	.16	.25	.38*	-				
7. Mental Well-Being	.43*	.04	.09	.20	.03	.72**	-			
8. PANAS Pos	.25	.17	.25	.30	.37*	.66**	.49**	-		
9. PANAS Neg	.01	-.07	.07	.10	.11	.05	.02	.12	-	
10. Physical Health	.04	-.17	.08	.29	.17	.34*	.49**	.25	-.02	-
11. Fitness	.34*	.04	-.06	-.03	-.22	.07	.10	.18	-.03	-.12

Note: * $p < .05$, ** $p < .001$

Table 9 Pre and Post-Intervention scores for exercise instructors

	Instructor A				Instructor B				Overall			
	Pre	Post	% Change	Effect Size	Pre	Post	% Change	Effect Size	Pre	Post	% Change	Effect Size
Prototypicality	5.5	6.0	9.0	0.9	5.3	6.0	13.2	0.9	5.4	6.0	11.1	0.9
	(.14)	(.00)			(.14)	(.00)			(.14)	(.00)		
Advancement	7.0	6.5	-7.1	-0.5	6.5	7.0	8.0	0.6	6.75	6.75	0	0
	(.35)	(.35)			(.35)	(.35)			(.35)	(.35)		
Entrepreneurship	6.0	6.5	8.3	0.9	6.0	6.3	5.0	0.8	6.0	6.4	6.7	0.8
	(.00)	(.14)			(.00)	(.14)			(.00)	(.14)		
Impresarioship	6.3	6.3	0.0	0	6.3	6.3	0.0	0	6.3	6.3	0	0
	(.00)	(.00)			(.00)	(.00)			(.00)	(.00)		

Table 10 *Means, standard deviations, and effect sizes*

Variable	Group 1				Group 2				Overall			
	Pre (M; SD)	Post (M; SD)	% Change	Effect Size	Pre (M; SD)	Post (M; SD)	% Change	Effect Size	Pre (M; SD)	Post (M; SD)	% Change	Effect Size
GI	6.06 (1.16)	6.31 (.70)	4.1	0.3	6.50 (.71)	6.59 (.58)	1.4	0.1	6.26 (.99)	6.44 (.65)	2.9	0.2
ILIP	6.74 (.43)	6.78 (.51)	0.6	0.01	6.55 (.46)	6.83 (.30)	4.3	0.7	6.65 (.45)	6.80 (.42)	2.3	0.3
ILIA	6.87 (.27)	6.90 (.18)	0.4	0.03	6.84 (.23)	6.90 (.16)	0.9	0.3	6.85 (.25)	6.90 (.17)	0.7	0.2
ILIE	6.75 (.38)	6.86 (.23)	1.6	0.4	6.68 (.43)	6.90 (.19)	3.2	0.7	6.71 (.40)	6.88 (.21)	2.5	0.5
ILII	6.53 (.59)	6.87 (.21)	5.2	0.8	6.74 (.47)	6.82 (.23)	1.2	0.2	6.62 (.54)	6.85 (.25)	3.5	0.6
MOE	5.52 (.76)	5.64 (1.17)	0.2	0.1	6.01 (.65)	5.72 (.78)	-4.8	0.4	5.72 (.78)	5.74 (.75)	0.3	0.03
Well-being	51.94 (9.20	55.47 (12.42)	6.8	0.3	54.64 (7.61)	57.54 (6.16)	5.3	0.4	54.06 (8.71)	56.43 (9.90)	4.4	0.3
PANASP	40.12 (5.66)	40.27 (6.70)	0.4	0.02	42.26 (5.11)	41.77 (5.42)	-1.2	0.09	41.08 (5.44)	40.96 (6.07)	-0.3	0.02
PANASN	13.18 (4.19)	10.60 (1.30)	19.6	0.9	11.93 (4.30)	10.85 (1.63)	9.1	0.4	12.61 (4.22)	10.71 (1.44)	15	0.7
Health	4.12 (.60)	4.20 (.78)	1.9	0.1	3.93 (.83)	4.15 (.67)	5.6	0.3	4.03 (.71)	4.18 (.67)	3.7	0.2
Fitness	13.35 (1.66)	17.67** (2.72)	32.4	2.0	28.21 (5.37)	27.62 (3.20)	-2.1	0.2	20.12 (8.56)	22.29* (5.82)	10.8	0.3

Note: GI = Group Identity, ILIP = Prototypicality, ILIA = Advancement, ILIE = Entrepreneurship, ILII = Impresarioship, MOE = mobilisation of effort, PANASP = PANAS Positive, PANASN = PANAS Negative. * $p < .05$, ** $p < .001$

4.3.3 Social Validation Data

4.3.3.1 Group Exercisers

From collating the questionnaire data,100% of the group exercise participants commented that they found taking part in the study acceptable. A quarter of all the participants had noticed that the exercise instructor behaved differently in some way during the 8 weeks of the study, including being more attentive, wearing different clothes, or having introduced new exercises. Further, around 29% noticed that things changed for the group during the study, with the most common response being that there was an increase in group cohesion or group identity; for instance, a participant from Group B commented that "it brought us together as a group working on different challenges" and an exerciser from Group A stated that "we seem to be more of a group, than individuals". Therefore, two-thirds of participants reported that nothing had changed over the eight weeks of the study. Further, around 25% of participants felt that the intervention had made an impact, encouraging some to work harder and feel more encouraged, and helping one participant to "feel better about myself and I am starting to feel more like part of the group". In addition, 100% of the participants could state one of more of the three values identified in the study. Only 18% of participants said that their thinking about the exercise group had changed over the eight weeks, which included comments regarding the purpose of the group and the benefits of exercise. Most comments, however, were about the group identity. For example, a participant from Group B stated that "I don't think how I think about the exercise group has changed as such, just added another dimension of "we are all in it together", especially in the circumstances of COVID. There is an increased feeling of belonging to a friendly, encouraging group of people".

4.3.3.2 Group Exercise Instructors

From the analysis of the data, 12 lower-order themes were identified, which were then collapsed into four higher-order themes (see Table 15): (1) personal learning; (2) emotionality; (3) challenges; and (4) intervention observations.

Personal Learning. With the higher-order theme of personal learning consisting of the lower-order themes of consolidation and novelty, this highlighted that the intervention was viewed to some degree by both instructors as consolidating some of what they already knew about leadership (e.g. I was doing some of this intuitively" and "there were lots of things that I already had in place"), while also introducing them to aspects that were novel to them (e.g. I learned that being the leader of a group doesn't mean that you stand at the front and put yourself at the forefront of it, you lead from within the group" and "I changed the whole way that I speak").

Emotionality. Emotionality as a higher-order theme reflects the lower-order themes of positivity, enthusiasm and surprise. Both exercise instructors were very positive about being part of the study and implementing the 5Rs, which was conveyed in their tone during the interviews and the language used (e.g., "worthwhile", "valuable", " beneficial", "interesting", "enjoyed" and "moving"). In addition, enthusiasm was expressed for the programme, especially the values exercise, described as "powerful" and "bringing to the fore, what the group really meant to them". Further, the exercise instructors also expressed surprise about some of the responses to aspects of the intervention, with the exercise instructor of Group B describing being surprised about one of the identified values of the group (e.g., "I didn't expect the friendship/social value to be that strong") and that there had not been an improvement in the fitness results at the end of the eight weeks. While the exercise instructor of Group A expressed surprise that some participants did not feel that anything had changed over

the eight weeks (e.g., some of them didn't think that anything had changed (laughed), and then others felt that it was cool that we had the values").

Challenges. The higher-order theme of challenges includes the lower-order themes of language, time and effort and COVID. One of the major challenges discussed by the exercise instructors was the use of "us and we" language, which was something new to both instructors. Although the exercise instructor of Group A constantly referred to the group using the language of "we" and "us" during the interview and how she had to "change the whole way that I speak", it was the element that was the most challenging (e.g., "the wording that I used was probably the biggest change and the thing that I needed to think about the most"). The instructor of group B discussed that she found it hard to remember to use "us" and "we" and that she found it "patronising", resulting in her reverting to using the term "team" after consulting with the exercise group.

Further to this, the responses to the interviews indicated that the application of the 5Rs required time and effort on the part of the instructors; comments were made about making time to complete the training and the calls where "the time differences made it a bit tricky" and how the application of the intervention with the respective groups required thought and preparation (e.g., "there was a bit of work to be done, but it had to be done", "turning that language around was hard", "I don't need to super prepare any more, but for this exercise, I wrote notes and checked what I was doing before the class and made sure that I did it" and "it made me reflect on my practice, especially having to give you feedback, I had to think about it"). Both instructors also mentioned the challenges of COVID, which disrupted the process for group B, highlighting the importance of continuity for the application of the approach (e.g., "we had our interruptions which did not help, so without it, it would have been easier", "in week one

they did the fitness test in pairs and then in week 8 with COVID restrictions, they did it on their own, which seemed to have an impact). The exercise instructor of Group A also talked about the potential difficulties if she had been forced to teach under level 2 COVID conditions "then we couldn't interact in the same way, but our values would be there in some way", suggesting it would have led to finding new ways of embedding shared values and identity.

    Intervention Observations. The lower-order themes of togetherness, social interaction, motivation and the future were identified as part of the higher-order theme of intervention observations. Numerous references were made by both of the group exercise instructors regarding how the 5Rs programme encouraged togetherness, producing a greater sense of connection within the exercise groups (e.g., "giving us a sense of purpose, a theme, a sense of group", "I have observed that the group is much more connected" and "what they got from it was a real sense of togetherness, belonging and we're in it together"). The instructor of group A discussed the fact that as the leader of the group, she also felt more connected to the group (e.g., "*I* (emphasised) felt more connected, far more than what I was"). In considering what influenced this process, it was discussed that all the interventions influenced this process to some degree (e.g., "So every step that we took with those small activities that we had to do, we took a step closer to find out who we are, so if we hadn't had the 5Rs, we might not have got there" and "mixing all of the interventions together…to get a sense of being in it together"). However, both instructors discussed that it was the values exercise and the feedback around this that in particular influenced this process (e.g., "when it was fed back to them that the whole group really values friendship, then this re-affirms that, and it gives you an even greater sense of connection as everyone else feels that as well" and "we kind of

know that we were there for fun, fitness and friendship, but it brought it to the fore of what it really was for them when we started to delve into it".

In line with more togetherness, the exercise instructors observed more social interaction within the groups, with the instructor of group A discussing the increased energy and that "it's created more of a social environment than it used to be" and "now before I want to start the session it's natter, natter, natter and I have to play the music loud to stop them all talking". Further, these social interactions seemed to be deeper (e.g., "they shared personal stuff about themselves that they normally wouldn't do" and "they exchanged books…and recipes, so they went beyond the niceties, and they got to know each other a bit more"). There were also some observations of increased motivation in terms of members of group B being very motivated to hear the results of the social mapping exercise, and the exercise instructor of group A noticing that some of the group exercisers were putting in more effort (e.g., "some of them that just come in and mosey about were trying a lot harder, they were more involved. Some of them that come for the friendship or fun side seemed to be trying a bit harder to do the exercises more, rather than just going through the motions").

Finally, through their involvement and observations of the intervention, suggestions were made regarding the possible future use of the approach. There was consensus around recommending the 5Rs programme to other instructors, and that it would especially be helpful for new instructors (e.g., "I think if could be put in a workshop for training/upskilling…this would really help new instructors). Additionally, both instructors argued that the approach would work best with freestyle instructors (those not teaching pre-determined routines, i.e., Les Mills workouts) who work in community settings (e.g., "An individual instructor who perhaps will teach classes in a community hall, as opposed to a gym). In emphasising community group instructors,

there was some recognition that group instructors in gyms tend to teach back-to-back classes, where there is not the time, or possibly interest, from either the exercisers and the instructors to develop togetherness or implement these types of interventions (e.g., "So a gym environment makes it difficult to connect with people, they're definitely in and out, they do their thing and then go home"). However, it was felt that the 5Rs could be applied to any community group across different populations. The instructor of group B also suggested that the 5Rs might have more impact with a new, as opposed to an established exercise group (e.g., "I think that it would have more effect and work more quickly in a new group, it could speed up the whole process of feeling that commonality, by developing shared values").

Table 11 *Higher and lower order themes from Exercise Instructor Social Validation Interviews*

Higher order themes	Lower order themes
1. Personal Learning	• Consolidation • Novelty
2. Emotionality	• Positivity • Enthusiasm • Surprise
3. Challenges	• Language • Time and Effort • COVID
4. Intervention observations	• Togetherness • Social Interaction • Motivation • Future

4.4 Discussion

Addressing aims three to five of the thesis, the current study sought to examine whether identity leadership could be applied to formal exercise environments by training group exercise instructors to implement a leadership intervention based on the 5Rs of identity leadership (Haslam, Reicher & Platow, 2020). The study showed that it was possible to implement the intervention and train group exercise instructors in the model, which could be executed online and at a distance. Considering the impact of the intervention, there was no significant increase between Week 1 and Week 8 regarding perceptions of the exercise instructor providing the four principles of identity leadership (H1). In addition, there were no significant increases in perceptions of group identity (H2a), mobilisation of effort (H2b), mental well-being (H3a), physical health (H3b), positive affect (H3c) and a reduction of negative affect (H3d). However, despite this, there were some positive shifts and movements in the variables, which produced several small to large effect sizes, from 0.2 to 0.7. There was a significant improvement in fitness scores (H4). Social validation data indicated the intervention was acceptable to all the exercise group participants. Around a third of the group exercisers recognised that the exercise instructor behaved differently throughout the study. All participants could state at least one of the group values, and around 25% felt that the 5Rs had made an impact in improving group identity and encouraging group members to work harder. From the thematic analysis of the exercise instructors' social validation interviews, twelve lower-order themes were extrapolated from the data and collapsed into the four higher-order themes of: (1) personal learning; (2) emotionality; (3) challenges; and (4) intervention observations. From these findings, it was evident overall that the exercise instructors felt that overall the intervention had been impactful and recommended the approach to other exercise instructors, especially those running group exercise classes in

the community, and for more inexperienced group instructors; the group instructors also felt that the 5Rs could be used with any exercise population. Further, from the pre-and post-intervention ILI for leaders scores, both instructors applied more *Prototypicality* and *Entrepreneurship* with their groups by the end of the study.

4.4.1 Implications for Theory and Practice

The present study has several implications for theory as well as practice. Firstly, advancing the application of the 5Rs to structure exercise environments led by an exercise instructor, the study provided evidence that exercise instructors can apply identity leadership in "real world" community exercise groups. As with other studies in organisations (Haslam et al., 2003; 2017; Peters et al., 2013, 2014) and in sports teams (Mertens et al., 2020, 2021; Slater & Barker, 2019; Fransen et al., 2020) and more recently in walking groups (Fransen et al., 2022), this was achieved by providing a standardised training programme, consisting of workshops and facilitation throughout the intervention. Specifically, the study developed an adapted version of the 3Rs/5Rs, which had been applied previously in sporting contexts (Slater and Barker, 2019). In adapting the 5Rs to the group exercise context, the intervention utilised a modified social mapping exercise, which provided the values to develop the identity of the group, and there was a greater focus on the *Reflecting* stage to ensure that the exercise instructor was embedded in the group and seen as more prototypical. From the self-reports of the exercise instructors who were part of the study, the intervention was both acceptable and beneficial, allowing them to learn about the model and develop strategies for implementation. This positive response to the programme was reflected in reviews of the intervention, the final social validation interview data, and the results of the ILI

for leaders, which indicated that the exercise instructors felt that they had been demonstrating an increase in behaviours around *Prototypicality* and *Entrepreneurship*.

Secondly, the study provides evidence that exercise leaders utilising an identity leadership approach can promote a group's values and identity, which, once in place, can be harnessed to influence the behaviours of group exercisers in established exercise groups. As in previous identity leadership studies (Slater and Barker, 2019), there were increases between the pre-and post-intervention scores, indicating small to medium effect sizes across most of the measures (including *Entrepreneurship*, *Impresarioship*, and negative affect). In addition, there was a significant increase in the fitness scores between Week 1 and Week 8 of the intervention; however, despite these changes, the exercisers' perceptions of the instructors providing identity leadership and their perceptions of group identity, mobilisation of effort, mental well-being, positive and negative affect, as well as physical health were non-significant. There are various possible reasons for this. The study was working with existing established exercise groups in New Zealand, which has a small population and close local communities; therefore, it is likely there were already high levels of group identity. Also, as with other studies using the ILI (Slater & Barker, 2019; Fransen et al., 2020, 2022; Mertens et al., 2021), there appears to have been a ceiling effect, with participants scoring the ILI items highly pre-intervention. This effect is unsurprising considering that the research focused on exercise leaders of existing groups, and it is unlikely (compared to organisational settings) that the participants would continue to be part of a group if they did not at least find the exercise instructor acceptable. Also, considering the age of the participants, there may have been an element of social desirability bias (Isaksson et al., 2007), with the group exercisers responding in a way that was acceptable to the exercise instructor (who distributed and collected the questionnaires).

Further, it is likely that the disruption of a lockdown in the middle of the delivery of the intervention to Group B had some impact on the overall results. This disruption led to a break of four weeks before restarting the intervention, and classes resumed in Level 2 lockdown, which meant that group exercise could take place; however, participants had to exercise at a distance. This development made the application of the four principles and promoting values (especially that of friendship) more challenging. Although, despite this development, from the breakdown of the individual group results, there was still a change in the perceptions of the group exercisers across the variables (e.g., group identity and *Prototypicality*).

In addition, from the social validation data, it was interesting to note that both exercise instructors observed that there was an increase in "togetherness" in the group following the social mapping exercise, which identified the group's values, e.g. "(the group) got a real sense of belonging and we are in it together" (exercise instructor B) and around one-third of the group participants recognised that there was a sense that "we are all in it together". However, two-thirds of participants felt nothing had changed during the intervention, which was somewhat surprising. Again, this could have been a result of social desirability bias, as several comments mentioned that the exercise instructor was as "good as ever" (Isaksson et al., 2007), or perhaps the subtlety of the identity leadership approach with the emphasis on language and group values, as discussed by Haslam, Reicher and Platow (2020), made it difficult for some participants to differentiate? Further research could take a more qualitative approach to explore the follower experience under identity leadership.

Thirdly, the study provided several implications for applying identity leadership in the "real-world" exercise environment. The study was novel in that it demonstrated that delivering the 5Rs leadership intervention online (using Zoom) and at a distance was

possible. This online delivery was achieved by taking a standardised approach to the training and delivery protocol, which included continuous support over the 8-week intervention period. Unlike in other identity leadership intervention studies, where the researchers gave face-to-face sessions and support (Slater & Barker, 2019; Fransen et al., 2022), the researcher needed to provide more intensive input, including regular follow-ups and feedback via email to ensure understanding and compliance with the programme. Also, as with other identity interventions in sports (Slater & Barker, 2019), the application of the intervention required a level of creativity in terms of developing an acceptable social identity mapping exercise that would fit with the running of a community exercise class and finding ways of communicating the values of the group. In both groups, the values (which were around fun, friendship, and fitness) were communicated via posters and other mediums, including music. For instance, in Group A, posters were developed, which were displayed in the session and were based on a couple of television series that were popular with the group. In addition, music was played at the beginning and end of the session, which reflected one of the group's values of friendship.

Further, it was apparent that the intervention requires flexibility and must be tailored to fit the individual exercise instructor. For example, the exercise instructor for Group B belonged to the same generation as many of the group exercisers in her group and was perceived as part of the group (i.e., through wearing the same apparel and referring to shared experiences). Therefore, there was less emphasis on some of the elements of the *Reflecting* stage compared to exercise instructor A, who had to develop more strategies around being perceived as prototypical and part of the in-group.

4.4.2 Limitations and Future Research Directions

There are several limitations to this study, including the fact that it involved a small number of participants and utilised a pre- and post- design without a control group, which means it is impossible to make causal inferences. To a greater extent, the size and design of the study reflected the reality of working under "real world" conditions, which were made more complex by COVID, and the intensive nature of applying the 5Rs approach (Fransen et al., 2020). Nevertheless, the study population was homogeneous, and the intervention was uniformly delivered to mitigate any internal and external bias as much as possible.

Conducting the study at a distance also could be viewed as a limitation of the study, as there was no guarantee that the exercise instructor would apply the approach, and logistically it was not possible to film sessions to rate the exerciser instructor's application of the 5Rs. However, the study recruited experienced exercise instructors who volunteered to participate; the feedback discussions, workshops, and final interviews showed that they attempted to apply the approach. Further, the structure of the 5Rs programme in terms of content and delivery enabled a level of control and compliance, which aided the successful online application of the intervention and comprehensive study. Future research could compare face-to-face and distance delivery to consider if this makes any difference to the outcomes of the intervention.

The general feedback and the responses to the social validation interviews also highlight another possible weakness in applying this approach within the exercise environment, which pertains to language. Although the exercise instructors were able to articulate the different strategies at each stage of the identity leadership approach, they found it more difficult to discuss the 5Rs in terms of the various stages (e.g., *Representing* and *Realising*), which were terms originally defined to be applied in

organisational contexts (Haslam et al., 2014). In future applications of the 5Rs, perhaps researchers could consider renaming the stages to make more sense in this context (e.g., Warming up rather than Readying?). Confusion with terms and meanings may also apply to the ILI (Steffens et al., 2014). Perhaps the identified ceiling effect could also have been partly due to a lack of understanding on the part of participants in comprehending the language used in the various items (i.e. The exercise instructor provides structures that are useful to us").

Finally, the results of the outcomes were mixed, with only fitness scores indicating significance. Nevertheless, the results did show a positive shift and the fitness scores provide evidence that identity leadership can potentially influence an increase in actual effort, which is considered a crucial outcome goal of physical activity (Steele et al., 2017). In addition, these somewhat mixed results have also been found in other studies that have attempted to apply any of the 3Rs/5Rs programmes (Fransen et al., 2022; Slater & Barker, 2019). For instance, in a recent study using the 5Rs shared model in older adult walking groups, the researchers found that the programme increased participants' perceptions of group identity and well-being; however, the same increases were present in the non-intervention control groups. As all participants in the study were already part of the same physical activity programme, this would likely have influenced the outcomes. Overall, these findings may partly reflect the challenges of applying the model in "real world" settings, in which researchers often work with existing groups and where there is less control over the recruitment of participants and other external factors. Future research may want to consider this and look to replicate the study with newly formed exercise groups in the community (e.g. for older adults and those with long-term conditions), which perhaps are more likely to show a significant change in group identity and other outcomes. Also, as discussed by the exercise instructors, future 5Rs studies could train less experienced

exercise instructors with limited experience in leading groups. Additionally, to develop the model further, the 5Rs should be tested using control groups and compared to other acknowledged leadership models (e.g., transformational leadership), as well as testing the long-term efficacy of the approach using longitudinal studies.

4.4.3 Conclusion

This current study addresses the third aim of the thesis. It contributes to the exercise and identity leadership literature by applying the 5Rs to the structured group exercise environment with appointed leaders and by considering the impact of the approach on the mobilisation of effort, mental well-being, physical health, and fitness levels. From the findings, it is evident that it is possible to apply the identity leadership approach to this setting and to provide a training programme for exercise instructors who lead formal exercise groups. Although the research did not fully support the efficacy of the 5Rs, overall improvements were observed in most of the variables, and there were significant increases in fitness scores. Also, from the analysis of the exercise instructor participants' interviews, the themes of encouraging group identity, training in the future and suitability were promising for developing and applying this intervention further.

Further, utilising a novel approach to deliver this intervention online suggests the possibility of reaching a wider audience for this type of research and intervention within exercise settings. Overall, this initial application of identity leadership to a structured group exercise setting suggests that the application of identity leadership could help exercise instructors successfully lead and influence exercise groups and explains how leadership works within the exercise environment. Therefore, it is hoped that this study provides a template for researchers and practitioners to continue applying the 5Rs with exercise instructors and their groups, encouraging "us" to keep fit and well.

In concluding this thesis, the following general discussion chapter will summarise the overall findings of this research programme and consider these in terms of the wider implications for theory and practice, together with limitations and recommendations for future research directions.

CHAPTER 5: GENERAL DISCUSSION: SUMMARY OF FINDINGS AND IMPLICATIONS FOR THEORY AND PRACTICE

5.1 Introduction

The overall objective of this thesis was to examine and apply our understanding of identity leadership to structured exercise contexts where there is an appointed group exercise instructor and to consider its potential to influence group exercisers' mental well-being and physical health. This final chapter will summarise the implications of the key findings of this current thesis. As part of achieving the overall objective, the aims of the thesis were to: (i) explore the relationships between identity leadership, mental well-being and physical health, together with the mediating roles of group identity and mobilisation of effort in group exercisers; (ii) examine the influence of applying the four principles of identity leadership (vs. not) on the group identity, mobilisation of effort, positive/negative affect, and the potential adherence of exercisers and non-exercisers; (iii) develop and apply a 5Rs identity leadership intervention with a structured group exercise context, training group exercise instructors to apply the model when leading exercise groups, and to test the effectiveness of the intervention by considering its impact on group exercisers' group identity, mobilisation of effort, mental well-being, physical health and fitness levels.

The findings of the previous chapters will be summarised in the first section of this general discussion. Next, these key findings will be discussed individually regarding their contribution to the theoretical/wider literature and applied contexts. There will then be a consideration of these findings in terms of the main strengths and limitations of the thesis and how these can be developed into areas for future research. Finally, the practical implications of the findings will be reviewed at the end of the chapter.

5.2 Summary of Findings

A review of the literature in Chapter 1 identified a dearth of leadership literature in the group exercise domain, and despite an acknowledgement that group exercise instructors may influence various exercise outcomes, little is known about the processes involved in this and what might mediate any associations (Eastabrooks et al., 2012). In addition, although there has been some recent interest and progress in considering the role of identity leadership in exercise and physical activity settings (Fransen et al., 2022; Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White, et al., 2022), less is understood about the relationships between identity leadership and its association with aspects of well-being, and also how it can be applied in practice with structured group exercise led by group exercise instructors.

To consider some of these issues:

In Chapter 2 (Study 1), the research initially examined the relationships between identity leadership, mental well-being and physical health and the extent to which group identity and mobilisation of effort may mediate these relationships using a correlational design. The findings supported Hypotheses H1a to H1d, and positive associations were found between all the variables, and in line with Hypotheses H2a to H2c, beyond group identity, identity leadership accounted for a small but significant additional variance in groups exercisers' perceptions of mobilisation of effort, mental well-being and physical health. Further, it was established that the relationship between identity leadership and mental well-being and physical health was serially mediated by group identity and mobilisation of effort (H3a to H3b). All the principles apart from advancement were identified as significant predictors in the regression analyses, and prototypicality and entrepreneurship were significant predictors in the mediation analyses. Only the principle of entrepreneurship

appeared in serial mediations for both mental well-being and physical health. Group identity was not a predictor in either of the simple mediations.

Chapter 3 (Study 2) extended these findings by experimentally testing the four principles of identity leadership (vs. not) on the group identity, mobilisation of effort, positive/negative affect and the adherence of exercisers and non-exercisers using a quasi-experimental design. Providing manipulations, which identified potential behaviours for each identity leadership principle based on the available research (see Haslam et al., 2020), significant differences were found across all four principles. Participants responding to the high identity leadership condition (compared to the control) reported significantly higher levels of group identity (H1), mobilisation of effort (H2), positive affect (H3a) and intention to return to the class (H4), as well as lower levels of negative affect (H3b). Further, there were no differences between how both the exerciser and non-exerciser populations responded to the two conditions (H5); however, some differences were found between the outcomes of these two groups, with the exercisers perceiving higher levels of mobilisation of effort and positive affect compared to the non-exercisers.

Chapter 4 (Study 3) built on the findings of the experimental study by applying the four principles in the form of an intervention study, in which two group exercise instructors were trained in the original 5Rs of identity leadership and then were asked to apply the model to two established groups of older adult exercisers using a pre and post-intervention design. The study also looked to test the efficacy of the 5Rs programme and considered the impact of this on the desirable outcomes of mobilisation of effort, mental well-being, physical health and fitness levels at Week 8 of the study. The study indicates that group exercise instructors can be trained to implement a leadership intervention based on the 5Rs of identity leadership and that this training can be successfully delivered online. In terms of the impact of the intervention, there were no significant increases in perceptions of identity leadership (H1),

group identity (H2), mobilisation of effort (H3a), mental well-being (H3b), physical health (H3c), positive affect (H3d) and a reduction of negative affect (H3e). However, there were some positive shifts in all the variables post-intervention, which produced several small to large effects (between 0.2 and 0.7), and there was a significant improvement in fitness scores (H4). In reviewing the application of the intervention, a thematic analysis of the group exercise instructors' social validation data identified four higher-order themes, including emotionality and challenges of the approach.

In sum, this thesis provides evidence that the identity leadership approach can potentially influence group exercisers' well-being (i.e., mental well-being and physical health) across correlational, experimental and intervention studies. Mediation analyses found that these relationships were mediated by both group identity and mobilisation of effort, and in doing so, highlights the role of mobilisation of effort in encouraging mental well-being and physical health, as well as identifying entrepreneurship as the strongest predictor (Chapter 2 (Study 1)). However, in considering the latter, the effect sizes were significant but small, and other principles were highlighted as significant in simple mediation and regression analyses; nevertheless, this evidence was strengthened by experimental findings in Chapter 3 (Study 2) by manipulating all four principles using a novel EVM approach. Further, going beyond more recent studies (Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022), the experiment in Chapter 3 (Study 2) involved both "exercisers" and "non-exercisers", with the latter defined as those who did not currently adhere to physical activity guidelines, and found that this group responded positively to the identity leadership approach. In addition, by attempting to manipulate all four principles in a naturalistic setting, as opposed to focusing on manipulating one principle (Stevens, Rees, Steffens et al., 2019), the study emphasises identity leadership as an overall approach, as well as suggesting how the principles might operate in practice within structured group exercise settings. Taking this further, these

findings, together with previous research applying the 3Rs/5Rs identity leadership programme (Fransen et al., 2020, 2022; Mertens et al., 2020, 2021; Slater & Barker, 2019; Slater, 2019), were used to inform the development of a 5Rs intervention programme with group exercise instructors. Chapter 4 (Study 3) in this thesis indicates that it is possible to apply the original 5Rs programme with group exercise instructors and that it can be delivered in novel ways, using online training and support. The programme's efficacy was not proven in terms of the impact of the five stages on group exercisers' mental well-being and physical health. However, there were shifts in all of the measures resulting in increased effect sizes, and there was a significant improvement in fitness scores, which could be argued reflects practical improvements in actual effort. Applying the approach to existing exercise groups and interruptions due to COVID may have impacted the results, indicating the importance of maintaining the principles/stages of the model. Social validation data from the exercisers and exercise instructors suggested further research on followers' experience of the model and suitability for future use.

Table 12 *Main Findings of the Thesis*

Chapter	Aims	Findings
2	To explore the relationships between perceptions of identity leadership, mental well-being and physical health, together with the mediating roles of social identity and mobilisation of effort in group exercisers.	Positive associations were found between all variables. Hierarchical regressions indicate that beyond group identity, identity leadership explains between 4 and 8% of the variance. Apart from advancement, all principles were significant predictors. Atemporal serial mediations suggest that the relationships between identity leadership, mental well-being and physical health are serially explained by group identity and mobilisation of effort. The indirect effects show that the relationship between prototypicality, entrepreneurship and well-being is mediated: (1) by mobilisation in the prototypicality model; and (2) by group identity and mobilisation in the entrepreneurship model. Further, indirect effects indicate that the relationships between entrepreneurship and physical health are mediated: (1) by mobilisation; and (2) by group identity and mobilisation.
3	To examine the influence of applying the four principles of identity leadership (vs. not) on the group identity, mobilisation of effort, positive/negative affect and the potential adherence of exercisers and non-exercisers	A group exercise instructor providing High IL (compared to the control) influenced group identity, mobilisation of effort, positive/negative affect and potential adherence of exercisers and non-exercisers. No difference was found between how the exercisers and non-exercisers responded to the two conditions; however, in terms of outcomes, exercisers showed higher levels of mobilisation of effort and positive affect than non-exercisers.
4	To develop and apply a 5R's identity leadership intervention within a structured exercise context and to test the efficacy of the 5R's by considering its impact on group exercisers' group identity, mobilisation of effort, mental well-being, physical health and fitness levels.	Two group exercise instructors were trained and supported to apply the 5Rs in a structured group exercise setting. No significant differences were found in the pre and post-intervention scores for group identity, mobilisation of effort, mental well-being, physical health and positive/negative effect. However, overall fitness scores did increase post-intervention, and some positive shifts in the variables produced several small to large effect sizes (0.2 to 0.7). Social validation data was positive.

5.3 Key Contributions

Considering the findings of these studies collectively, this thesis makes three overall contributions to the literature in terms of: (1) recognising identity leadership's potential to influence the well-being of group exercisers through group identity and mobilisation of effort; (2) extending our understanding and application of all four principles of identity leadership; and (3) contributing to the broader exercise psychology and leadership literature. Each of these will now be discussed in turn.

5.3.1 Contribution 1: Identity Leadership Influencing Well-Being Through Group Identity and Mobilisation of Effort

Chapter 2 (Study 1) of this thesis provided an addition to the literature by considering the associations between identity leadership and well-being, and the role of group identity and the mobilisation of effort (i.e. intentional effort), in mediating this relationship, both individually and serially within structured group exercise contexts. Primarily, the findings of the current thesis suggest that group exercise instructors can potentially directly influence the mental well-being and physical health of group exercisers, thereby extending the literature which has considered the impact of identity leadership on follower well-being in other settings (De Cremer et al., 2006; Fransen et al., 2019; Harms et al., 2017; Krug et al., 2020, 2021; Mertens et al., 2020, 2021; Steffens et al., 2017). For instance, the findings correspond with those found in the organizational literature, which suggest that identity leadership can both positively and negatively impact the well-being and health of their employees (De Cremer et al., 2006; Krug et al., 2020, 2021; Steffens et al., 2017). However, the mediation analysis goes beyond this. Its findings support the premise of identity leadership theory, which suggests that effective leadership is enacted through developing a shared group identity, and once internalised as part of group members' self-concept, this can then be utilised to mobilise the group towards achieving desired outcomes and goals, i.e. increased

productivity (Hogg, 2001; Hogg & van Knippenberg, 2003; van Knippenberg, 2011).

Moreover, the overall findings of this thesis proposed that within structured exercise settings, when a group instructor takes an identity leadership approach and encourages a sense of a shared group identity, then group exercisers are more likely to engage with the group and, in turn, interpret greater mental well-being and physical health because of greater effort.

Group identity was found to play a major role in increasing well-being in group exercisers, as indicated in other more recent exercise studies (Fransen et al., 2022; Stevens, White et al., 2022). From a social identity perspective, the findings of the studies suggest that the group exercise participants defined a sense of self from the membership of their exercise groups as "in-groups", leading to participants comparing their groups favourably with other relevant "out-groups" (i.e. other exercise groups or those who do not exercise), which in turn enhanced their self-esteem and well-being (Tajfel & Turner, 1979). These findings correspond to those of the social cure literature, which stresses that group membership and social identities can enhance various aspects of well-being, including positive mood (Cruwys et al., 2013; Greenaway et al., 2015, 2016; Jetten et al., 2015; McNamara et al., 2021; Outten et al., 2009; Sani et al., 2012) and health (Haslam et al., 2008, Sani et al., 2015). Therefore, beyond mobilisation of effort, just being part of an exercise group as an "in-group" could increase a sense of mental well-being and physical health, strengthening the theoretical basis of the literature in this area.

In addition, the findings around group identity can also be explained in terms of self-categorisation theory, which has been applied to the exercise and physical activity domain (Beauchamp, Welch & Hulley, 2007; Beauchamp et al., 2012; Dunlop & Beauchamp, 2011, 2013; Stevens, Rees & Polman, 2019). The findings across the three studies suggest that group exercisers embraced the norms, values and goals of their respective groups through the process of self-categorisation (i.e., through self-stereotyping and the commonality of being a

member of the exercise group), resulting in a sense of "we-ness" and group identity. The group exercise instructors were then able to harness this group identity to encourage the group exercisers to increase their intention to exert effort. In considering self-categorisation theory and its most recent application to exercise groups, there is an implication that surface-level comparisons (i.e., age and gender), as opposed to deeper-level ones (i.e., values), are enough to create a sense of social identity and cohesion (Beauchamp & Carron et al., 2007; Beauchamp et al., 2011; Beauchamp et al., 2015; Harrison et al., 1998). However, this research is limited, and there is some suggestion that superficial similarities are only relevant when group members are unfamiliar with each other and that deeper intra-group comparisons become more salient when group members become more familiar (Harrison et al., 1998). Also, it could be that a group exerciser who initially self-categorises according to age could also be making unconscious assumptions that others of the same age will hold similar norms and values. Further, it is suggested that identity leaders need to craft strong social identities, utilising deeper levels of comparisons (i.e. values) (Evans et al., 2021; Haslam, Reicher & Platow, 2020; Reicher & Haslam, 2006; Slater & Barker, 2019), and studies two and three in Chapter 3 and 4, emphasise the development of group identity at the values level. Therefore, future researchers could consider self-categorization and the extent to which identity leaders would need to develop and maintain a group based on superficial or deep intra-group comparisons.

Further, this thesis highlights the role of the mobilisation of effort, which extends our understanding of the underlying processes between identity leadership and well-being within structured exercise contexts. Although group identity was an important factor in group exercisers' mental well-being and physical health, group identity alone did not mediate the positive relationship between identity leadership and mental well-being or physical health, only in serial. In contrast, mobilisation of effort was found to mediate the positive

relationship in both simple and serial mediations; this differs from recent findings in adult peer walking groups (Fransen et al., 2022), which found that group identity mediated the relationship between identity leadership and well-being. However, it could be argued that the main goal of peer walking groups for older adults is to encourage participants to develop group membership for well-being, as opposed to the goal of increasing fitness or effort. While the overall findings reflect the theoretical underpinnings of the model, with an identity leader mobilising effort through shared group identity to attain desired outcomes and goals (Cicero et al., 2008; Slater et al., 2019; Slater and Barker, 2019), it also suggests that the facilitation of mental well-being and physical health within the group exercise environment, requires an exercise leader to actively encourage the effort of exercise group members (i.e., as part of the overall vision of the exercise instructor). With the mobilisation of effort seen as an important antecedent and mediator of mental well-being and physical health, this further reinforces the call in the literature to focus on effort in physical activity to improve health (Lee et al., 2002; Steele et al., 2017). In addition, it suggests that an identity leader in an exercise context must have a clear understanding of what effort means in the context of their class and that this may differ according to the type of exercise group they are instructing (i.e., effort may have a different meaning in a yoga class compared to the effort expected within a cross-fit class).

5.3.2 Contribution 2: Extending Understanding and Application of the Four Principles of Identity Leadership

In considering the relationship between identity leadership and well-being, the thesis also adds to the literature by considering all four principles of the approach, as opposed to focusing on one or using composite scores as in previous studies (Fransen et al., 2022; Steffens et al., 2020). From the available general and specific literature, there has been a

greater focus on the principles of prototypicality and entrepreneurship (Steffens et al., 2020; Steffens & Haslam, 2013), and Chapter 2 did ascertain that entrepreneurship was the main predictor in the mediation models, stressing the importance of exercise instructors creating a sense of shared identity, which has been the focus in other identity leadership studies in exercise and physical activity contexts (Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022). However, representing and embedding group identity through the principles of prototypicality and impresarioship were also significant predictors in the mediation and regression models, suggesting that other principles potentially play a part in participants' perceptions of mental well-being and physical health. For example, prototypicality was the main predictor in the regression models, and in simple mediation for mental well-being. Further, Chapters 3 and 4's findings also imply that all four principles (separately, or as part of the 5Rs identity leadership programme), can impact group exercisers' mental well-being and physical health. This rather mixed picture indicates that the four principles within exercise contexts require further consideration to understand better the associations and application of the identity leadership approach.

From a theoretical perspective, Haslam, Reicher and Platow (2020) discuss the importance of leaders developing all four principles and how each is an essential part of the overall model. For instance, it would be impossible for a leader to advance the group and be seen as "doing it for us" if the leader had not spent time developing prototypicality to be perceived as "one of us". Further, there is also some evidence around the importance of adhering to the principles (Evans et al., 2021; Haslam & Reicher, 2007), as the position of a leader is a precarious one, which requires continual effort to maintain a leadership position (Haslam, Reicher & Platow, 2020). The group exercise instructors discussed the effort necessary to implement and maintain identity leadership in Chapter 4 (Study 3) as part of the social validation data. Despite the premise of the approach, the identity leadership literature

has been criticised for too much theorising and focusing on one of the principles (especially that of prototypicality) in organisational settings (Hou et al., 2021). Therefore, in testing all four principles of identity leadership, the studies in this thesis help to extend the application of the theory and further to understand the principles within structured group exercise contexts.

As part of this stance, Chapter 3 (Study 2) attempted to operationalise all four principles within a structured exercise context. Due to the very limited exercise literature, each principle was transformed into behaviours based on previous identity research and theory (Haslam & Reicher, 2007; Haslam, Reicher & Platow, 2020; Platow et al., 1997) and more recent studies within sporting and exercise settings (Evans et al., 2021; Slater & Barker, 2019; Slater et al., 2018; Stevens, Rees, Steffens et al., 2019; Stevens, White et al., 2022). Having found that these behaviours appeared to be a good fit, these behaviours were then integrated into Chapter 4's 5Rs stage model of identity leadership (Study 3). In attempting to operationalise the principles, it was evident that they overlap to some degree and potentially vary according to the context. In addition, from observing the principles in practice, it could be argued that there are some similarities between identity leadership and other leadership models. For example, contemporary transformational and servant leadership discuss the importance of encouraging connecting with others (Edmunds et al., 2008; Wilson et al., 2003) and within exercise environments, approaches based on team cohesion or needs-supportive leadership (Ntoumanis et al., 2017), stress the use of collective "we" and "us" language. This overlap is unsurprising, considering Northouse's general definition of leadership, which applies to other approaches; however, although identity leadership stresses its strong theoretical and empirical underpinning and its emphasis on developing shared social identities, it seems important for identity leadership researchers to highlight the approach's differences by continuing to test all the identity principles both experimentally

and in applied studies. In addition, these differences could be explored in studies comparing identity leadership to other leadership approaches. This suggestion is discussed later in the future recommendations section.

Further, considering all four principles allowed a more comprehensive application of the 5Rs of identity leadership. Previous applied studies which have attempted to apply the 3Rs/5Rs have tended to emphasise the first stage of *Reflection* and the exercises which focus on the identification of the values and group identities for the leader to be able to develop shared group identity, and there is less discussion of how to create the other stages. However, in applying the 5Rs in Chapter 4 (Study 3), there was an attempt to interpret the behaviours more fully at each stage. For instance, whereas in the studies in organizational and sporting settings, an assumption is made that the leader is already seen as part of the group (Haslam et al., 2009; Fransen et al., 2019; Mertens et al., 2021, 2021), the *Reflection* stage in Chapter 4 also focuses on the skills and behaviours required to put the leader in a position to be seen as "one of them", through the leader observing, listening and interacting with the group, which is alluded to in the description of the 5Rs (Haslam et al., 2017) and as part of the general discussions around the identity leadership approach (Haslam & Reicher, 2007; Haslam, Reicher & Platow, 2020). This interpretation of the principles in practice also highlights that the processes involved at each stage of the 5Rs may differ according to the context, and that the mechanisms at each stage could be further explored in future studies.

In addition, applying the four principles in the 5Rs study provided some interesting insights into the model from the followers' perspective. The social validation data indicated that not all group members were aware of the leader taking an identity leadership approach; while all participants could name one or more of the shared group values, only around a third noticed that the instructor was behaving differently. Although it is unclear why this may be the case (e.g., the subtlety of the approach or social desirability bias), perhaps not everyone is

influenced by a leader taking an identity leadership approach, as some people may be less motivated to be group members. For instance, critics argue that social identity theorists and experimenters fail to acknowledge the complexity of identity development and the individual dimension of Turner's original theory. In addition, it is argued that individuals have some choice in the acquiring of group identities and that the strength of any allegiance to an in-group may also be dependent on individual differences (e.g. the importance given to a need to belong, for uniqueness, or a greater need for self-esteem) (Huddy, 2001). Within a structured exercise context, it could also be possible for someone to attend a group and identify more with the out-group, especially when individuals may be "encouraged" to participate by professionals (i.e., cardiac rehabilitation exercise groups) or where an individual identifies more strongly with other group or individual identities (i.e., identifying as someone who is retired and needs to be less active). Therefore, is identity leadership potentially less effective with some followers within structured exercise contexts? Despite emphasising the dynamic interactive process of leadership, the researcher is unaware of any research that considers these issues and the subjective experience of followers of identity leaders, which may help to develop the approach and its effectiveness in this context.

5.3.3 Contribution 3: Extending Leadership Research within Exercise Psychology

As discussed in the literature review of this thesis, there is a paucity of leadership research within the domain of group exercise, despite the acknowledgement that leadership plays an important role in group exercise (Estabrooks et al., 2012). Very few studies exist that focus solely on leadership, with only a small number of studies attempting to apply a leadership approach as part of an intervention study. In addition, a major criticism of leadership research, in general, is that it fails to consider evidence-based leadership approaches. Most studies conducted in exercise environments are no exception, focusing on

leadership styles or approaches that lack a strong theoretical and evidence base (Beauchamp, Welch & Hulley, 2007; Bray et al., 2005; Fox et al., 2000). Therefore, this thesis extends and brings originality to the exercise psychology literature by applying an evidence-based leadership approach to structured group exercise across three studies.

In addition, from these studies, the findings suggest that the approach has the potential to further explain exerciser behaviour in structured group exercise settings. Focusing on the processes and mechanisms that underlie the associations between leadership and desirable outcomes is critical to our understanding of the role of leadership in influencing participants within exercise domains (Eastabrooks et al., 2012; Stevens, Rees & Cruwys, 2021). While it is true that other approaches have discussed the importance of group identity and have even drawn upon self-categorisation theory to explain this (i.e. the research on group cohesion and deep and low-level similarities; Dunlop & Beauchamp, 2011), in drawing upon the broader social identity theory, identity leadership provides a greater theoretical appreciation of the processes involved in developing shared group identity and the role of the leader in this process (Stevens, Cruwys, Rees et al., 2020).

Further, by applying the four principles of identity leadership in both the experimental and intervention study, the thesis goes beyond correlational analysis, which appears to be the norm for most exercise leadership research, including more recent studies considering identity leadership in exercise and physical activity contexts (Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022). By utilising different methodologies, the studies suggest "how" group exercise instructors can apply the approach in structured exercise groups; therefore, in Chapter 4 (Study 3), the content of each stage of the 5Rs and an intervention delivery protocol is made transparent and discussed in detail, to encourage the further application of the model, which is often missing in other leadership intervention studies (Beauchamp et al., 2011; Fox et al., 2000). For instance, in a study by

Beauchamp et al. (2011), which developed a transformational leadership intervention with physical education teachers, there is a limited explanation of the intervention regarding the target behaviours and the protocol used in the study. Although Chapter 4 produced some mixed results, the results were promising, and the clarity of the intervention provides opportunities for the model to be tested in the future, which will be discussed in the future research section.

Finally, Chapter 4 showed that it was possible to successfully provide a leadership programme to train and support exercise instructors to develop an identity leadership approach. There is little discussion of leadership training in the exercise literature, and a major criticism of the leadership literature, in general, is that it fails to provide evidence-based leadership education (Avolio et al., 2009). Therefore, this thesis offers another addition to both literatures providing an acceptable evidence-based intervention delivered online to group exercise instructors and is open to evaluation at several levels. In addition, this application highlights the need to further test and develop leadership interventions with group exercise instructors, which is discussed in the future research section.

5.4 Strengths

The body of research within this thesis has several strengths. Firstly, the thesis considers the question of identity leadership within structured exercise contexts across three different study designs; within these studies, the programme explores identity leadership at different levels (i.e. association, principle and programme), utilising various methodologies (i.e., mediation analysis, quasi-experimental, and applied intervention). Using different methods provides an element of methodological triangulation. Furthermore, this strengthens any findings regarding the potential of the approach to impact the well-being of group

exercisers and highlights the researcher's competencies in developing different studies as part of a PhD programme.

Secondly, the thesis utilises novel research methods and designs. Much of the research within identity leadership has focused on correlational and experimental research, and as previously discussed, most of the studies within exercise contexts have been correlational (Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018; Stevens, White et al., 2022). Chapter 3 (Study 2) extends the literature using a novel EVM approach, in which the researcher developed two conditions based on naturalistic settings using slideshows. This application went beyond a written vignette, which differed from other studies that have used the approach in sports settings (Evans et al., 2021; Miller et al., 2021; Slater et al., 2018), and provided a more immersive experience, considered as crucial to the effectiveness of this approach (Aguinis & Bradley, 2014). Although EVM has limitations, Chapter 3 experimentally confirmed the associations found in Study 1 and provides a creative way to continue researching the identity leadership approach.

In addition, COVID provided an opportunity to conduct research online. Chapter 4 (Study 3) demonstrated that it was possible to deliver the original 5Rs programme to group exercise instructors based in New Zealand, online, and at a distance. Producing an online standardised approach to the training and delivery of the protocol opens opportunities for further application of identity leadership in "real world" exercise environments with busy exercise instructors. Although there are recognised limitations regarding fidelity to the model, the study indicated how stringent protocols and procedures can mitigate some of these concerns. Future applications of this approach could compare online and face-to-face delivery of the protocol to assess further its effectiveness, which is discussed below.

Thirdly, the research programme included participants who were not currently involved in any moderate/vigorous intensive exercise. Chapter 3 (Study 2) extended the

literature by considering the impact of the four principles of identity leadership on both "exercisers" and "non-exercisers", with the latter defined as individuals who were not currently reaching the physical activity threshold around medium or high-intensity exercise (vs. exercisers who were reaching the activity thresholds). Encouragingly, as with the exercisers, non-exercisers responded positively to the high identity leadership condition and showed increased perceptions of group identity, mobilisation of effort, and positive affect. Within the general group exercise literature and in the small number of studies that have explored identity leadership within exercise contexts (Rowe & Slater, 2021; Steffens et al., 2019; Stevens et al., 2018, Stevens, White et al., 2022), studies tend to recruit participants who are already members of exercise groups and are likely to be experienced motivated exercisers, as part of correlational studies. As one of the main justifications for applying the approach to exercise environments is to find ways of reducing inactivity levels, it seems important for researchers to design studies that recruit participants who are not participating in (or doing enough) exercise activity.

5.5 Limitations

Although this thesis provides a coherent programme of research, there are some limitations which offer opportunities for future research directions and continued theoretical development. Evidence from the three studies suggests the potential for group exercise instructors to impact the well-being of group exercisers through identity leadership. However, although many of the results were significant, the effect sizes or shifts were small and in particular, the application of the 5Rs in Chapter 4 (Study 3) produced mixed results. Although it could be argued that this is unsurprising, considering that well-being is influenced by a variety of factors (e.g. social and occupational) and that the outcomes of Chapter 4 (Study 3) may have been affected by the type of group used in the study, additional research is required to explore these findings further.

Secondly, the programme did not study the constructs longitudinally. For example, in Chapter 2 (Study 1), the mediation analysis was based on data collected at one-time point as part of a correlational analysis. To be more confident in the mediation analysis results and to identify "true" mediation, it would be preferable to test the mediation findings by taking another dataset from the same cohort of participants at another time in the future (e.g. between one to six months). However, this is often very difficult in practice due to high participant dropout rates. Similarly, in Chapter 4 (Study 3), longitudinal data was not collected beyond the 8-week study; therefore, it is unclear whether any changes resulting from the intervention were maintained.

Thirdly, the constructs used within the studies were mainly based on subjective measurement, which provides another limitation of the research. For instance, participants were asked to rate their mental well-being, physical health and levels of mobilisation of effort using relevant measures. As with other identity leadership studies, it is difficult to find more objective ways of measuring these types of constructs within correlational and quasi-experimental EVM designs (Evans et al., 2021; Slater et al., 2018, 2019; Steffens et al., 2019). However, fitness tests were undertaken to provide a more objective measure of actual effort as part of the 5Rs intervention study, and perhaps these could be considered in future studies such as resting heart rate or taking blood pressure, which would indicate actual levels of physical well-being and health.

Finally, access to participants, study design and procedures was restricted due to unavoidable external factors. Although it has been acknowledged that COVID provided increased opportunities for research and to develop novel methodologies and processes, the lockdown also offered a challenge to many researchers, who were forced to completely redesign, modify or even pause their work (Dodds & Hess, 2020; Tremblay et al., 2021). This thesis was no exception to this. In Chapters 3 and 4, data collection and study protocols had

to be adapted; for example, in the quasi-experimental study (Chapter 3, Study 2), the researcher planned to collect the data face-to-face within University settings, which was then changed to online collection. Additionally, in Chapter 4 (Study 3), the intervention study was conducted online, outside of the UK in New Zealand, and the protocol was altered according to the availability of the participants. To manage this online delivery, strict procedures ensured that research was as controlled as possible, and there is evidence to suggest that there is little difference between the effectiveness of delivering a behavioural intervention online or in person, although there may be a preference for face-to-face input (Agazzi et al., 2021). However, study three in Chapter 4 was paused for a period due to the introduction of a level 3 lock-down (which did not allow the exercisers to attend group classes), which may have impacted the overall results of the study, as there is evidence that lock-down negatively influenced peoples' mental health and well-being (Gasteiger et al., 2021) and from the feedback it was more challenging for the exercise instructor to implement the *Realising* stage.

5.6 Future Research Directions

From identifying the key contributions and the limitations identified above, there are several potential future research directions.

Firstly, although the research programme highlights the potential of identity leadership to impact the well-being of group exercisers, further studies are needed to test the constructs longitudinally. For example, to be more confident in the results of the mediation analysis in Chapter 2 (Study 1) and to find "true" mediation, researchers could test the mediation effects by taking another dataset from the same cohort of participants at another time in the future (e.g., between one to six months). Similarly, with the application of the original 5Rs, any future research could further enhance our understanding of the efficacy of the approach by following up with exercise group members three to six months post-

intervention to consider maintenance effects. Additionally, group exercise instructors could be re-interviewed at this stage to ascertain continuing fidelity to the model.

Secondly, future studies could use more objective measures when testing the various constructs to increase reliability and validity. For example, levels of physical health could be measured using heart rate variability measurements or from health screening tools that ask for current health history, such as the Par-Q (Warburton et al., 2021). Similarly, although Chapter 4 (Study 3) did include a fitness test to indicate actual effort, other methods could be used such as step counters, heart rate monitors or strength tests, which would depend on the nature of the exercise group.

Thirdly, future researchers could look to continue to test all four principles of identity leadership, making full use of the ILI (Steffens et al., 2014); as part of this, the findings suggest that there is a need to continue to experiment with these, to provide greater clarification of each principle within exercise settings, as well as in other contexts. In addition, in acknowledging the potential overlaps between identity leadership and alternative leadership approaches, it seems apparent that it would be useful to test identity leadership against these approaches experimentally (e.g., testing a high identity leadership condition versus a group cohesion condition) and as part of comparative intervention studies, to provide greater clarification of the differences and to strengthen our overall knowledge of the approach.

Fourthly, any future application of identity leadership in experimental studies could facilitate experiments with different populations, including those who are not current exercisers and from groups who are likely not to be reaching current physical activity guidelines (e.g., around fifty-five per cent of those with long term conditions are seen as inactive; Sport England, Active Lives Adult Survey, 2022), as opposed to the more readily available student participants. This development may require researchers to use more creative

experimental designs, perhaps utilising EVM or experiments in actual exercise settings. For example, as EVM uses the power of imagination, could a visual recording of an exercise instructor displaying all the principles of identity leadership be used to increase the mobilisation of effort with individuals who struggle to exercise, through exposure to the recording over time? Experimenting in naturalistic conditions would also allow researchers to test the impact of identity leadership on actual effort, perhaps using fitness apps, step counters or relevant fitness tests, which would partially circumvent the issues with subjective measures of potential or estimated action.

Fifthly, future research could continue to apply the original 5Rs in structured group exercise contexts and replicate Chapter 4 (Study 3). As discussed, due to practicalities, it was not possible as part of this research to implement a non-randomised cross-over design to increase control; however, future studies might consider this or by using a randomised control group design. Regarding the latter, researchers could use another leadership model (e.g., the needs-supportive approach) as the control group to test the identity leadership against alternative leadership approaches. In addition, groups where the leader has applied identity leadership could be followed over a period to test the long-term efficacy of the approach. Further, due to the small shifts found pre and post-intervention, researchers might consider applying the 5Rs programme with less experienced group exercise instructors and newly formed exercise groups in community settings (e.g., long terms conditions, older adults, young people), as well as running the intervention over a longer period (i.e., 3 or 6 months), to see whether the length of the intervention makes any difference to its efficacy. Additionally, in considering the delivery of the intervention in Chapter 4, it would also be useful for future studies to compare the application of the apply 5Rs online and at a distance with face-to-face delivery, to see if there are any differences in outcomes. Moreover, there could be more consideration of the behavioural measures of effort, which are likely to vary

between different groups (e.g., sit-to-stand test with older adult groups, progressing to higher weights in weight training groups), and to film and rate sessions to ensure fidelity to the model.

Finally, another possible area for potential future research, which may help to explain and develop the 5Rs/ identity leadership approach, is to consider the background and experience of followers. As discussed earlier, it is unclear why only one-third of participants in Chapter 4 (Study 3) observed changes in the behaviours of the group exercise instructor during the implementation of the 5Rs. To better understand this, there could be a greater emphasis on considering individual differences in the strength of group identities and the influence of other variables (i.e., important individual identities and personality traits, such as introversion). As part of this, researchers could pay more attention to self-categorization and the superficial and deep levels of intra-group commonality to aid the leader in developing and maintaining a sense of group identity. In addition, qualitative methodologies could further enhance our understanding of followers, with participants interviewed in depth before and after an intervention or asked to keep reflective diaries, completing an entry after each class. Finally, with followers in mind, it would also be interesting to identify whether the recognition of the leader applying identity leadership results in better outcomes.

5.7 Practical Implications

From the findings of the thesis, several practical implications could be considered in implementing the identity leadership approach.

Firstly, from the perspective of researchers, the programme suggests that it is possible to extend and develop the identity leadership model through the application of more creative and novel research methodologies and designs, which have been discussed as necessary to further our understanding of the approach (Stevens, Rees & Cruwys, 2021). Both the EVM

and intervention study demonstrated that being more creative using quasi-experimental designs and online interventions enabled the application of the identity leadership approach with populations who were either not reaching physical activity guidelines or were from populations more likely to be inactive. Therefore, it appears possible to work beyond statistical modelling and correlational studies.

Secondly, the programme's findings support the acknowledgement within the health and physical activity literature that there needs to be more focus on effort (Lee et al., 2002; Steele et al., 2017). From both the perspective of a researcher and exercise instructor, this would need to be more clearly defined. In considering the many different types of exercise groups (i.e., from yoga to circuit classes), the definition of effort will differ from group to group; therefore, practically, this would need to be ascertained to enable an exercise instructor to mobilise the group as part of the identity leadership approach.

Thirdly, the thesis indicates that group exercise instructors could play an important role in influencing the well-being of group exercisers; therefore, this process could be enhanced by group instructors receiving identity leadership training as part of any group exercise training modules or continuing professional development. The skills and behaviours discussed in Chapter 4 (Study 3) and the 5Rs intervention suggest how this could be developed and structured. In addition, the training was delivered online, which seemed to work well with busy group fitness instructors and is another way of encouraging engagement both in terms of leadership training and indicates how researchers could look to recruit and train participants in future studies.

Finally, the findings suggest that to promote well-being, in terms of mental well-being and physical health, group instructors need to focus on developing a shared identity with their exercise groups and also to use the shared values of the group to motivate group members to engage and to put effort into their exercise (i.e. whatever effort means to the particular

exercise group), which is likely to be part of an exercise instructor's overall vision of the group. The behaviours described for each principle in Chapter 3 (Study 2), which are then expanded upon in Chapter 4 (Study 3) as part of the different stages of the 5Rs programme, give some guidance. For instance, with the 5Rs programme, the direction is given around developing a shared group identity, including running a simplified social identity mapping exercise, feeding back the generated shared group values and the use of "us" and "we" language, as part of the *Reflecting* and *Representing* stages. In addition, the *Realising* stage encourages the instructor to embed the values and goals of the group in the development of class content and collective feedback.

Some potential practical issues around suitability in the future application of the approach were highlighted. From the researcher's experience delivering the programme and the themes that emerged from the group instructors' social validation data, the programme may be more suitable for particular instructors and exercise groups. As many instructors are employed by private gyms to provide back-to-back prescribed exercise classes (i.e., Les Mills), it is unlikely that they would have the time to implement this approach; as a result of this, it is more likely that independent exercise instructors working in community settings would have the resources to be able to train and apply identity leadership (i.e., with older adult or long-term conditions groups), where there is more control over their time and class content. Also, as community exercise groups tend to focus on populations more likely to be inactive, these are the groups that researchers need to target.

5.8 Thesis Conclusion

In applying identity leadership to structured group exercise, this thesis makes an original contribution to the identity leadership literature in several ways. Firstly, a mediation analysis found positive relationships between identity leadership, mental well-being and physical health, and that these relationships were mediated by group identity and mobilisation

of effort. Secondly, in considering the processes involved in developing identity leadership, all four principles of identity leadership were tested experimentally. The findings suggested that when a group exercise instructor implemented all four identity principles of identity leadership (vs. not), this increased levels of group identity, mobilisation of effort, positive affect and intention to return to exercise classes in both exercisers and non-exercisers, highlighting the potential importance of all four principles. Thirdly, in response to "how" to apply identity leadership, the original 5Rs leadership programme was tested with group exercise instructors leading structured exercise groups, which produced mixed results. Fourthly, in further developing the knowledge and research in this area, the programme applied novel research methodologies, including EVM and the intervention's online delivery. Finally, the programme of studies contributes to the exercise psychology literature in that it considers and applies an evidence-based leadership approach, which helps further explain exercise behaviour and the processes of leadership within structured exercise groups. The findings of the thesis suggest that identity leadership provides a clear framework to understand, extend and apply a leadership approach within structured group exercise contexts to enhance the well-being of group exercisers. Several areas of future development and research have been highlighted, including a need to consider further testing all four principles and the application of the 5Rs to clarify the approach and how it differs from other leadership models. In summary, the thesis provides a substantial and original contribution to our understanding of identity leadership within structured exercise contexts, increasing our awareness of how group exercise instructors applying the approach can lead "us" to wellness.

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APPENDICES

APPENDIX 1: ETHICAL APPROVAL, CONSENT FORM, QUESTIONNAIRES, MEDIATION TABLES

Life Sciences and Education

PROPORTIONATE REVIEW APPROVAL FEEDBACK

Researcher name:	Jo Wood
Title of Study:	Social Identity Leadership within Exercise Contexts
Status of approval:	Approved

Thank you for addressing the committee's comments. Your research proposal has now been approved by the Ethics Panel and you may commence the implementation phase of your study. You should note that any divergence from the approved procedures and research method will invalidate any insurance and liability cover from the University. You should, therefore, notify the Panel of any significant divergence from this approved proposal.

You should arrange to meet with your supervisor for support during the process of completing your study and writing your dissertation.

When your study is complete, please send the ethics committee an end of study report. A template can be found on the ethics BlackBoard site.

Signed: Dr Roozbeh Naemi   **Date: 27.07.2018**

Chair of the Health Sciences Ethics Panel

Participant Information Sheet

Project Reference Number: [insert once provided by the university ethics committee]

Social Identity Leadership within Exercise Contexts Study

I would like to invite you to participate in this research project which forms part of my PhD research at the School of Life Sciences and Education at Staffordshire University. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

As part of this research, I am interested in the relationship between the leadership of exercise instructors and attitudes to exercise and well-being. By taking part and completing the survey, you will help us to better understand these relationships and this could help to develop strategies to encourage people to increase their levels of exercise and activity.

Why have I been invited to take part?

You have been invited to take part as an adult (18+), who is currently involved in a group exercise activity. This could be any kind of exercise group e.g. recreational sport, aerobics, Les Mills classes, chair fitness, walking groups, park-run, circuits, weight training etc.

What will happen if I take part?

Your participation will involve completing a consent form and questionnaire online around your perceptions of your exercise instructor and your views of yourself as an exerciser. The participation in completing this questionnaire should take around 15 minutes.

Do I have to take part?

Participation is completely voluntary. You should only take part if you want to and choosing not to take part will not disadvantage you in anyway. Once you have read the information sheet, please contact us if you have any questions that will help you make a decision about taking part. If you decide to take part we will ask you to give your consent either by ticking 'yes' on a consent form.

What are the possible risks of taking part?

It is very unlikely that the study will cause any harm as the questions do not cover sensitive topics. However, despite this, participation in the study may cause emotional

distress and anxiety given that you are answering questions about your exercise group and your own performance and well-being, which could impact on your performance.

In the unexpected event that you feel distress or anxious about completing the research you can contact the lead researcher who is a chartered psychologist (CPsychol.) with the British Psychological Society and she will be able to advise and refer you on the appropriate next steps. If you would prefer to speak to someone outside of the research project, you can contact Mind on: 0300 123 3393/ info@mind.org.uk or visit their website http://www.mind.org.uk for more information.

What are the possible benefits of taking part?

Completing the questionnaire will allow you to reflect on your current experience as an exerciser.

Data handling and confidentiality

Your data will be processed in accordance with the data protection law and will comply with the General Data Protection Regulation 2016 (GDPR). Your results will not be identifiable to anyone. The data you provide will be kept anonymous at all times and only myself and my supervisors (Dr Matt Slater and Dr Jamie Barker) will see your anonymised data. We do not ask for your name or any other identifying information. The data will be kept secure and stored for up to 10 years in line with University policy.

Data Protection Statement

The data controller for this project will be Staffordshire University. The University will process your personal data for the purpose of the research outlined above. The legal basis for processing your personal data for research purposes under the data protection law is a 'task in the public interest' You can provide your consent for the use of your personal data in this study by completing the consent form that has been provided to you.

You have the right to access information held about you. Your right of access can be exercised in accordance with the General Data Protection Regulation. You also have other rights including rights of correction, erasure, objection, and data portability. Questions, comments and requests about your personal data can also be sent to the Staffordshire University Data Protection Officer. If you wish to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk.

What if I change my mind about taking part?

You are free withdraw at any point of the study, without having to give a reason. Withdrawing from the study will not affect you in any way. You are able to withdraw your data from the study up until **31st October 2018**, after which withdrawal of your data will no longer be possible due to the fact that the data will have been processed at this point. If you decide to withdraw at any point up until this date, please email joanne.wood@research.staffs.ac.uk with the memorable unique participant identifier code you have provided on the demographics form.

If you choose to withdraw from the study we will not retain any information that you have provided us as a part of this study.

How is the project being funded?

This project is self-funded.

What will happen to the results of the study?

The information from the data will form part of a PhD study and could be used for publication in scientific journals or could be presented in scientific forums (conferences, seminars, workshops) or used for teaching purposes. All data will be presented anonymously.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact me, Jo Wood, using the following contact details:

joanne.wood@research.staffs.ac.uk

What if I have further questions, or if something goes wrong?

If this study has harmed you in any way or if you wish to make a complaint about the conduct of the study you can contact the study supervisor or the Chair of the Staffordshire University Ethics Committee for further advice and information:

Dr Matt Slater (Supervisor) – M.Slater@staffs.ac.uk

Dr Roozbeh Naemi (Chair of Ethics Committee) – r.naemi@staffs.ac.uk

Thank you for reading this information sheet and for considering taking part in this research.

DEMOGRAPHIC INFORMATION FORM
Title of Research Project: Social Identity Leadership within Exercise Contexts

Study Researcher: Jo Wood

Please answer the questions below

How old are you?	
What is your gender?	
What type of exercise group do you take part in? (state the main group if you take part in several exercise groups)	
How long have you been part of this group?	
How long have you been exercising?	
How many hours a week do you exercise?	
Please provide a unique identifier code e.g. JW4590 to allow your data to be deleted should you decide to withdraw your questionnaire data.	

EXERCISE QUESTIONNAIRES
Title of Research Project: Social Identity Leadership within Exercise Contexts

Study Researcher: Jo Wood

Do not spend too long on these statements as we are interested in your immediate response. Answer the statements in regard to how you are feeling **right now and in relation to the exercise group you attend (or the group you attend the most if you attend several)**

Consider each item and rate them on a 7-point scale from 1 (I do not agree at all) to 7 (I agree completely)

You feel a strong connection with the group	1 2 3 4 5 6 7
You identify strongly with the group	1 2 3 4 5 6 7
You feel no connection with the group	1 2 3 4 5 6 7
This exercise instructor embodies what the group stands for .	1 2 3 4 5 6 7
The exercise instructor is representative of members of the group	1 2 3 4 5 6 7
The exercise instructor is a model member of the group	1 2 3 4 5 6 7
The exercise instructor exemplifies what it means to be a member of the group	1 2 3 4 5 6 7
The exercise instructor promotes the interests of members of the group	1 2 3 4 5 6 7
The exercise instructor acts as a champion for the group.	1 2 3 4 5 6 7
The exercise instructor stands up for the group.	1 2 3 4 5 6 7
When the exercise instructor acts, he or she has the group's interests at heart.	1 2 3 4 5 6 7
The exercise instructor makes people feel as if they are part of the same group	1 2 3 4 5 6 7
The exercise instructor creates a sense of cohesion within the group.	1 2 3 4 5 6 7
The exercise instructor develops an understanding of what it means to be a member of the group.	1 2 3 4 5 6 7
The exercise instructor shapes members' perceptions of the group's values and ideals.	1 2 3 4 5 6 7

The exercise instructor devises activities that bring the group together.	1 2 3 4 5 6 7
The exercise instructor arranges events that help the group function effectively.	1 2 3 4 5 6 7
The exercise instructor creates structures that are useful for group members.	1 2 3 4 5 6 7
I will exert very high levels of effort in exercising	1 2 3 4 5 6 7
I want to impress the Exercise Instructor and others by how hard I work.	1 2 3 4 5 6 7
I am strongly motivated to develop as an exerciser	1 2 3 4 5 6 7
I am passionate and enthusiastic about exercise	1 2 3 4 5 6 7
I will do everything I can to fulfil my potential to exercise.	1 2 3 4 5 6 7
Away from this exercise session/class, how many hours per week do you exercise?	___ Hours

The following questions are related to mental well-being, meaning feeling good and functioning well. Read through the following statements and tick the box that best describes your thoughts and feelings over the last two weeks from a) none of the time to e) all of the time.

I've been feeling optimistic about the future	A B C D E
I've been feeling useful	A B C D E
I've been feeling relaxed	A B C D E
I've been feeling interested in other people	A B C D E
I've had energy to spare	A B C D E
I've been dealing with problems well	A B C D E
I've been thinking clearly	A B C D E
I've been feeling good about myself	A B C D E
I've been feeling close to other people	A B C D E
I've been feeling confident	A B C D E
I've been able to make up my mind about things	A B C D E
I've been feeling loved	A B C D E
I've been interested in new things	A B C D E
I've been feeling cheerful	A B C D E

Consider the item below and rate yourself between 1 and 5 *(with 1 being poor to 5 being excellent)*

How would you rate your overall health?	1 2 3 4 5

Well being

Total, direct and indirect effects; *Social Identity* as mediator 1, *Mobilization* as mediator 2
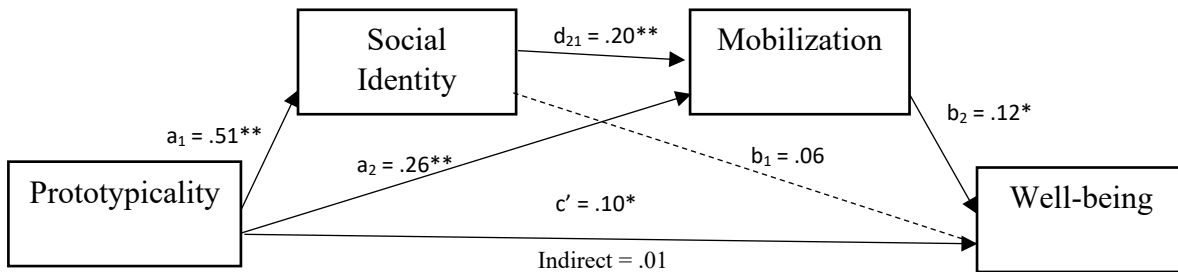
Total, direct and indirect effects of identity leadership on well being

	Total Effect	Direct Effect	Indirect# =effect, robust- standard error [to]
Prototypicality	$\beta = .11, p < .001$	$\beta = .10, p = .02$	Tot= .11, .04 [.03 to .20] Ind1= .03, .02 [-.01 to .07]; Ind2 = .03, .01 [.001 to .06]; Ind 3= .01, .01 [-.001 to .03]
Advancement	$\beta = .05, p = .27$	$\beta = .04, p = .42$	Tot= .05, .05 [-.04 to .15] Ind1= .04, .02 [.001 to .08]; Ind2 = .04, .02 [.01 to .07]; Ind 3= .02, .01 [.001 to .03]
Entrepreneurship	$\beta = .12, p = .017$	$\beta = .10, p = .051$	Tot= .12, .05 [.02 to .22] Ind1= .04, .03 [-.02 to .10]; Ind2 = .02, .01 [-.001 to .05]; Ind 3 = .02, .01 [.001 to .04]
Impresarioship	$\beta = .10, p = .045$	$\beta = .08, p = .11$	Tot= .10, .05 [.002 to .20] Ind1= .04, .03 [-.01 to .10]; Ind2 = .02, .01 [-.002 to .05]; Ind 3 = .02, .01 [.001 to .04]

Abbreviations: Ind1 = X - M1 - Y; Ind2 = X - M2 - Y; Ind3 = X – M1 - M2 - Y. M1; Social Identity,

M2; Mobilization. The 95% CI indicates a significant indirect effect because it does not include zero

Figures depicting the mediation models: *Social Identity* as mediator 1, and *mobilization* as mediator 2.

Serial multiple mediation model of prototypicality on well-being

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is social

identity and M2 is mobilization. Solid arrows depict significant associations, and dashed arrows

depict non-significant associations.

Serial multiple mediation model of advancement on well-being

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is social
 identity and M2 is mobilization. Solid arrows depict significant associations, and dashed
arrows

depict non-significant associations.

Serial multiple mediation model of entrepreneurship on well-being

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is social identity and M2 is mobilization. Solid arrows depict significant associations, and dashed arrows
depict non-significant associations.

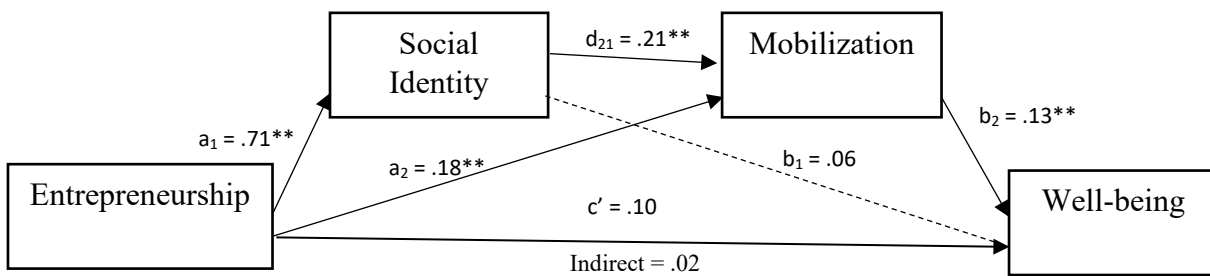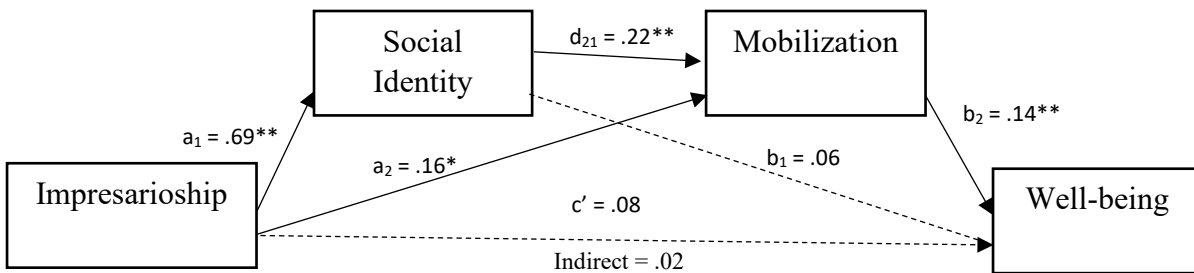Serial multiple mediation model of impresarioship on well-being

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is social identity and M2 is mobilization. Solid arrows depict significant associations, and dashed arrows
depict non-significant associations.

Reversed:

Total, direct and indirect effects; Mobilization as mediator 1, social identity as mediator 2

	Total Effect	Direct Effect	Indirect# =effect, robust- standard error [to]
Prototypicality	$\beta = .11, p < .001$	$\beta = .10, p = .02$	Tot= .11, .04 [.03 to .20] Ind1 = .04, .02 [.003 to .08]; Ind2= .02, .02 [-.01 to .05]; Ind 3= .01, .01 [-.001 to .02]
Advancement	$\beta = .05, p = .30$	$\beta = .04, p = .42$	Tot= .05, .05 [-.04 to .15] Ind1 = .05, .02 [.01 to .09]; Ind2= .03, .02 [.001 to .06]; Ind 3= .01, .01 [.001 to .02]
Entrepreneurship	$\beta = .11, p = .032$	$\beta = .10, p = .051$	Tot= .11, .05 [.01 to .20] Ind1 = .04, .02 [.01 to .08]; Ind2= .03, .02 [-.02 to .08]; Ind 3 = .01, .01 [-.003 to .02]
Impresarioship	$\beta = .09, p = .08$	$\beta = .08, p = .11$	Tot= .09, .05 [-.01 to .18] Ind1 = .04, .02 [.01 to .08]; Ind2= .04, .02 [-.01 to .08]; Ind 3 = .01, .01 [-.002 to .02]

Abbreviations:
Ind1 = X - M1 - Y; Ind2 = X - M2 - Y; Ind3 = X – M1 - M2 - Y. M1; Mobilization,

M2; Social Identity. The 95% CI indicates a significant indirect effect because it does not include zero.

Figures depicting the mediation models: *Mobilization* as mediator 1, and *social identity* as mediator 2.

Serial multiple mediation model of prototypicality on well-being

Mobilization $d_{21} = .40**$ Social Identity

$a_1 = .36**$ $b_2 = .06$

$a_2 = .37**$ $b_1 = .12*$

Prototypicality $c' = .10*$ Well-being

Indirect = .01

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is mobilization and M2 is social identity. Solid arrows depict significant associations, and dashed
arrows depict non-significant associations.

Serial multiple mediation model of advancement on well-being

Mobilization $d_{21} = .40**$ Social Identity

$a_1 = .37**$ $b_2 = .08*$

$a_2 = .40**$ $b_1 = .14*$

Advancement $c' = .04$ Well-being

Indirect = .01

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is mobilization and M2 is social identity. Solid arrows depict significant associations, and dashed
arrows depict non-significant associations.

Serial multiple mediation model of entrepreneurship on well-being

Mobilization → $d_{21} = .36^{**}$ → Social Identity

$a_1 = .33^{**}$

$a_2 = .59^{**}$

$b_2 = .06$

Entrepreneurship

$b_1 = .13^{**}$

$c' = .10$

Well-being

Indirect = .01

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is mobilization and M2 is social identity. Solid arrows depict significant associations, and dashed
arrows depict non-significant associations.

Serial multiple mediation model of impresarioship on well-being

Mobilization → $d_{21} = .40^{**}$ → Social Identity

$a_1 = .31^{**}$

$a_2 = .57^{**}$

$b_2 = .06$

Impresarioship

$b_1 = .14^{**}$

$c' = .08$

Well-being

Indirect = .01

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is mobilization and M2 is social identity. Solid arrows depict significant associations, and dashed
arrows depict non-significant associations.

Physical Health

Total, direct and indirect effects; *Social Identity* as mediator 1, *Mobilization* as mediator 2

Total, direct and indirect effects of identity leadership on health

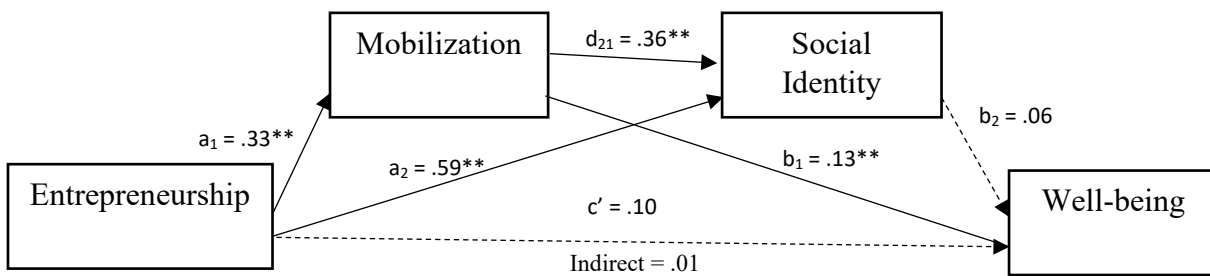|	Total Effect	Direct Effect	Indirect# =effect, robust- standard error [to]
Prototypicality	$\beta = .06, p = .133$	$\beta = .04, p = .31$	Tot= .06, .04 [-.02 to .14] Ind1= .03, .02 [-.01 to .06]; Ind2 = .05, .02 [.02 to .08]; Ind 3= .02, .01 [.004 to .03]
Advancement	$\beta = .01, p = .84$	$\beta = -.01, p = .78$	Tot= .01, .05 [-.08 to .10] Ind1= .03, .02 [-.004 to .07]; Ind2 = .05, .02 [.02 to .08]; Ind 3= .02, .01 [.01 to .04]
Entrepreneurship	$\beta = .14, p = .005$	$\beta = .11, p = .03$	Tot= .14, .05 [.04 to .23] Ind1= .02, .03 [-.03 to .07]; Ind2 = .03, .01 [.01 to .06]; Ind 3 = .03, .01 [.01 to .05]
Impresarioship	$\beta = -.03, p = .60$	$\beta = -.06, p = .25$	Tot= -.03, .05 [-.12 to .07] Ind1= .05, .05 [-.002 to .11]; Ind2 = .03, .01 [.01 to .06]; Ind 3 = .03, .01 [.01 to .05]

Abbreviations: Ind1 = X - M1 - Y; Ind2 = X - M2 - Y; Ind3 = X – M1 - M2 - Y. M1; Social Identity, M2; Mobilization. The 95% CI indicates a significant indirect effect because it does not include zero.

Figures depicting the mediation models: *Social Identity* as mediator 1, and *mobilization* as mediator 2.

Serial multiple mediation model of prototypicality on Health

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is social identity and M2 is mobilization. Solid arrows depict significant associations, and dashed arrows
depict non-significant associations.
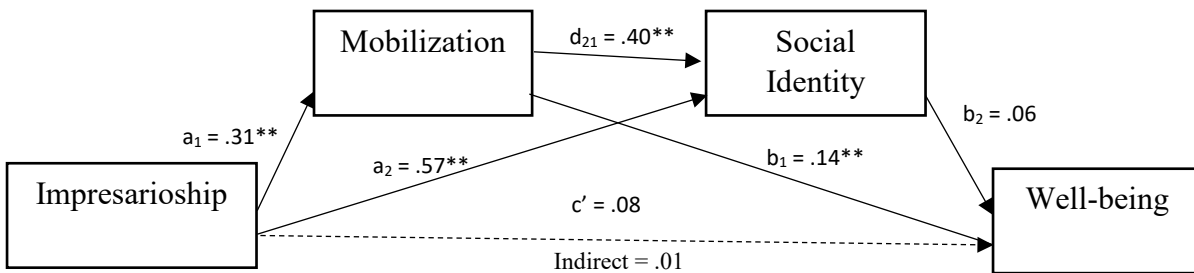
Serial multiple mediation model of advancement on Health

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is social identity and M2 is mobilization. Solid arrows depict significant associations, and dashed arrows depict non-significant associations.

Serial multiple mediation model of entrepreneurship on Health

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is social identity and M2 is mobilization. Solid arrows depict significant associations, and dashed arrows
depict non-significant associations.

Serial multiple mediation model of impresarioship on Health

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is social identity and M2 is mobilization. Solid arrows depict significant associations, and dashed arrows
depict non-significant associations.

Reverse Physical Health

Total, direct and indirect effects; *Mobilization* as mediator 1, *social identity* as mediator 2

	Total Effect	Direct Effect	Indirect# =effect, robust- standard error [to]
Prototypicality	$\beta = .05, p = .23$	$\beta = .04, p = .31$	Tot= .05, .04 [-.03 to .13] Ind1= .07, .02 [.03 to .11]; Ind2 = .02, .01 [-.01 to .05]; Ind 3= .01, .01 [-.003 to .02]
Advancement	$\beta = -.004, p = .94$	$\beta = -.01, p = .78$	Tot= -.004, .05 [-.09 to .09] Ind1= .07, .02 [.04 to .11]; Ind2 = .02, .02 [-.004 to .05]; Ind 3= .01, .01 [-.002 to .02]
Entrepreneurship	$\beta = .11, p = .02$	$\beta = .11, p = .03$	Tot= .11, .05 [.02 to .20] Ind1= .06, .02 [.03 to .10]; Ind2 = .02, .02 [-.03 to .06]; Ind 3 = .003, .004 [-.01 to .01]
Impresarioship	$\beta = .09, p = .08$	$\beta = .08, p = .11$	Tot= .09, .05 [-.01 to .18] Ind1= .04, .02 [.01 to .08]; Ind2 = .04, .02 [-.01 to .08]; Ind 3 = .01, .01 [-.01 to .02]

Abbreviations: Ind1 = X - M1 - Y; Ind2 = X - M2 - Y; Ind3 = X – M1 - M2 - Y. M1; Mobilization,

M2; Social Identity. The 95% CI indicates a significant indirect effect because it does not include zero.
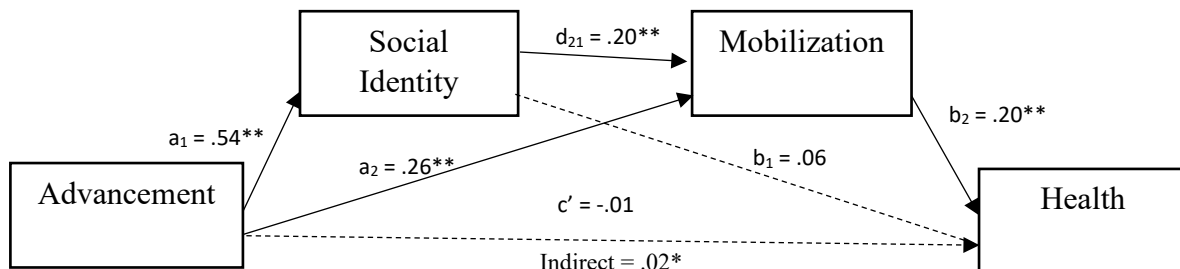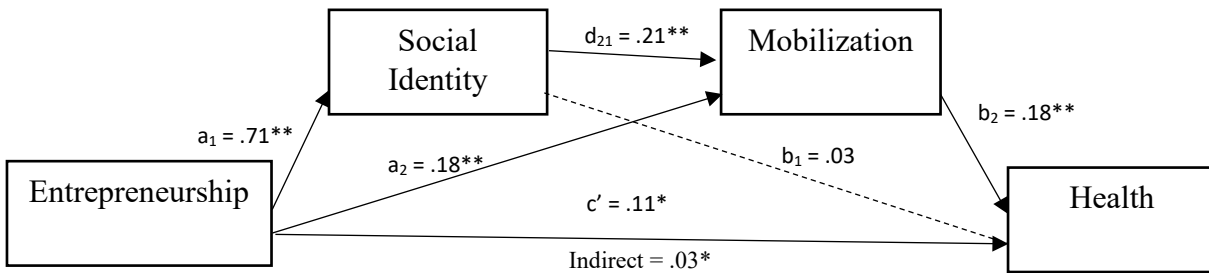
Figures depicting the mediation models: *Mobilization* as mediator 1, and *social identity* as mediator 2.

Serial multiple mediation model of prototypicality on Health

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is mobilization and M2 is social identity. Solid arrows depict significant associations, and dashed
arrows depict non-significant associations.
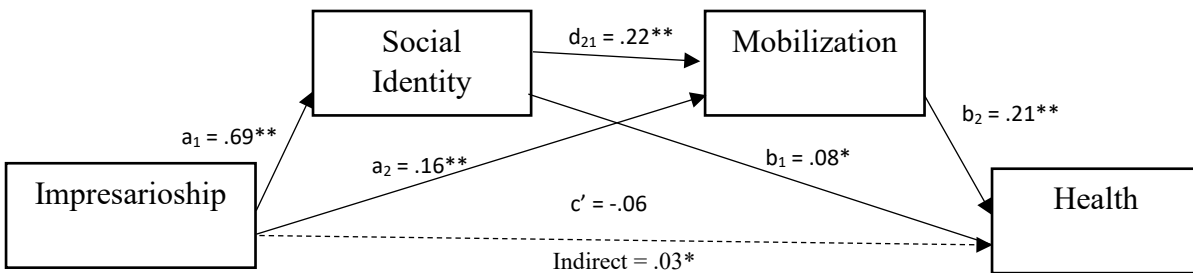
Serial multiple mediation model of advancement on Health

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is mobilization and M2 is social identity. Solid arrows depict significant associations, and dashed
arrows depict non-significant associations.

Serial multiple mediation model of entrepreneurship on Health

Mobilization

Social Identity

Entrepreneurship

Health

$d_{21} = .36**$

$a_1 = .33**$

$a_2 = .59**$

$b_2 = .03$

$b_1 = .18**$

$c' = .11*$

Indirect = .003

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is mobilization and M2 is social identity. Solid arrows depict significant associations, and dashed
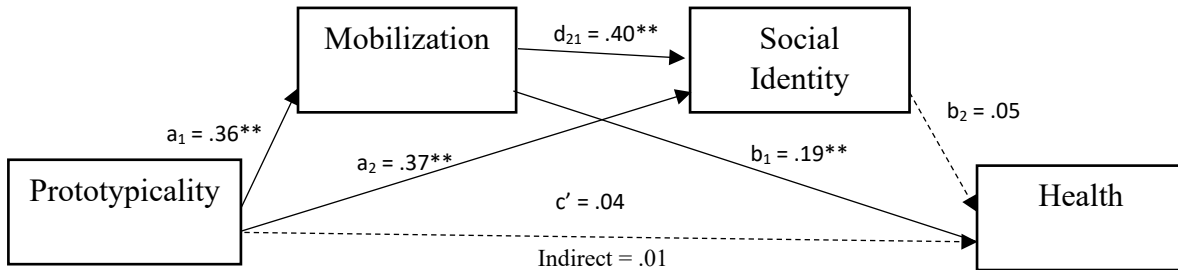
arrows depict non-significant associations.

Serial multiple mediation model of impresarioship on Health

Mobilization

Social Identity

Impresarioship

Health

$d_{21} = .37**$

$a_1 = .31**$

$a_2 = .57**$

$b_2 = .06$

$b_1 = .14**$

$c' = .08$

Indirect = .01

Notes: p < .05*, p< .01**, " – The 95% CI indicate a significant indirect effect. M1 is mobilization and M2 is social identity. Solid arrows depict significant associations, and dashed

arrows depict non-significant associations.

APPENDIX 2: ETHICAL APPROVAL, CONSENT FORM, QUESTIONNAIRES, CONSENT FORM FOR FILMING PARTICIPANTS, DEBRIEF, LINKS FOR SLIDESHOWS

Life Sciences and Education

ETHICAL APPROVAL FEEDBACK

Researcher name:	Jo Wood
Title of Study:	Social Identity Leadership in Exercise Contexts
Status of approval:	Approved

Thank you for addressing the committee's comments. Your research proposal has now been approved by the Ethics Panel and you may commence the implementation phase of your study. You s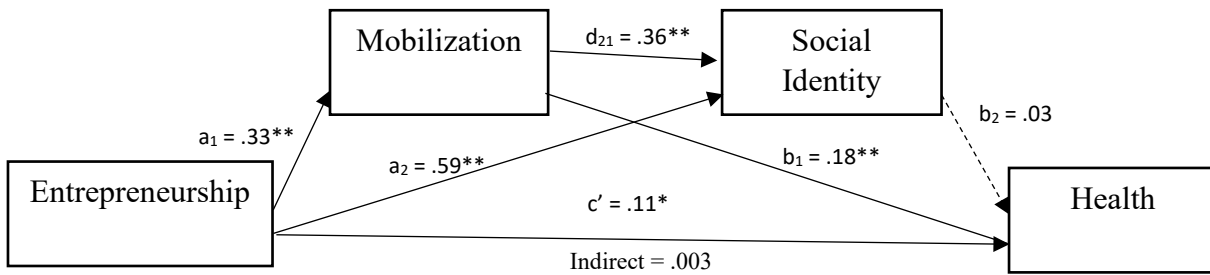hould note that any divergence from the approved procedures and research method will invalidate any insurance and liability cover from the University. You should, therefore, notify the Panel of any significant divergence from this approved proposal.

When your study is complete, please send the ethics committee an end of study report. A template can be found on the ethics BlackBoard site.

Signed: Dr Roozbeh Naemi   **Date: 07.06.2019**

Ethics Coordinator
School of Life Sciences and Education

Social Identity Leadership within Exercise Contexts Study

Consent and Information Form

I would like to invite you to participate in this research project which forms part of my PhD research at the School of Life Sciences and Education at Staffordshire University. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

As part of this research, I am interested in the relationship between the leadership of exercise instructors and attitudes to exercise and well-being. By taking part and completing the survey, you will help us to better understand these relationships and this could help to develop strategies to encourage people to increase their levels of activity.

Why have I been invited to take part?

You have been invited to take part as an adult over the age of 18 and you may or may not currently participate in exercise

What will happen if I take part?

Your participation will involve consenting to the study, completing a short demographics form, watching two films of a group exercise class, and completing questionnaires online as if you were taking part as a member of the exercise group. Participation in completing this research will take around 20 minutes.

Do I have to take part?

Participation is completely voluntary. You should only take part if you want to and choosing not to take part will not disadvantage you in any way. Once you have read the information sheet, please contact us if you have any questions that will help you decide about taking part. If you decide to take part, we will ask you to give your consent below.

What are the possible risks of taking part?

It is very unlikely that the study will cause any harm as the questions do not cover sensitive topics. However, despite this, participation in the study may cause emotional

distress and anxiety given that you are answering questions about your exercise group and your own performance and well-being, which could impact on your performance.

In the unexpected event that you feel distress or anxious about completing the research you can contact the lead researcher, Jo Wood (joanne.wood@research.staffs.ac.uk), who is a chartered psychologist (CPsychol.) with the British Psychological Society and she will be able to advise and refer you on the appropriate next steps. If you would prefer to speak to someone outside of the research project, you can contact Mind on: 0300 123 3393/ info@mind.org.uk or visit their website http://www.mind.org.uk for more information.

What are the possible benefits of taking part?

Completing the questionnaire will allow you to reflect on your current and past experience as an exerciser and will help us to develop exercise groups that appeal to a broad and diverse population.

Data handling and confidentiality

Your data will be processed in accordance with the data protection law and will comply with the General Data Protection Regulation 2016 (GDPR). Your results will not be identifiable to anyone. The data you provide will be kept anonymous at all times and only myself and my supervisors (Dr Matt Slater and Dr Jamie Barker) will see your anonymised data. We do not ask for your name or any other identifying information. The data will be kept secure and stored for up to 10 years in line with University policy.

Data Protection Statement

The data controller for this project will be Staffordshire University. The University will process your personal data for the purpose of the research outlined above. The legal basis for processing your personal data for research purposes under the data protection law is a 'task in the public interest' You can provide your consent for the use of your personal data in this study by completing the consent form that has been provided to you.

You have the right to access information held about you. Your right of access can be exercised in accordance with the General Data Protection Regulation. You also have other rights including rights of correction, erasure, objection, and data portability. Questions, comments, and requests about your personal data can also be sent to the Staffordshire University Data Protection Officer. If you wish to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk.

What if I change my mind about taking part?

You are free to withdraw at any point of the study, without having to give a reason. Withdrawing from the study will not affect you in any way. You can withdraw your data from the study up until **30th September 2019**, after which withdrawal of your data will no longer be possible because the data will have been processed at this point. If you decide to withdraw at any point up until this date, please email **joanne.wood@research.staffs.ac.uk** with the memorable unique participant identifier code you have provided on the demographics form.

If you choose to withdraw from the study, we will not retain any information that you have provided us as a part of this study.

What will happen to the results of the study?

The information from the data will form part of a PhD study and could be used for publication in scientific journals or could be presented in scientific forums (conferences, seminars, workshops) or used for teaching purposes. All data will be presented anonymously.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact me, Jo Wood, using the following contact details:

joanne.wood@research.staffs.ac.uk

What if I have further questions, or if something goes wrong?

If this study has harmed you in any way, or if you wish to make a complaint about the conduct of the study you can contact the study supervisor:

Dr Matt Slater (Supervisor) – M.Slater@staffs.ac.uk

By agreeing to take part, you are indicating that you are at least 18 years old and that you have read and understand the above information

☑ **By ticking this box, I consent to take part in this study**

Demographics

Gender
Male
Female
Other

Age

18-24

25-34

35-44

45-54

55-64

65+

Do you take part in any type of structured led exercise (e.g., circuit training, yoga, insanity,
Les Mills, running group, recreational football etc.)?
Yes
No

If yes, how many hours do you spend exercising each week
1
2
3
4
5
6+

Please provide a unique identifier code e.g. JW4590 to allow your data to be deleted should you decide to withdraw your questionnaire data, or you would like to see your individual results.

Participant Instructions

You are going to be asked to watch two short five-minute films of a group exercise class.

When you are watching the film, imagine that you are a member of the group. After each film you will be asked to complete some questionnaires, please answer these as if you were a member of the group shown in the film.

EXERCISE QUESTIONNAIRES

Title of Research Project: Social Identity Leadership within Exercise Contexts Study

Researcher: Jo Wood

Imagine that you were taking part as a member of the exercise group in the film you have just watched and complete the questions with this in mind below.

Consider each item and rate them on a 7-point scale from **1 (I do not agree at all)** to **7 (I agree completely)**

Do not spend too long on these statements as we are interested in your immediate response.

You feel a strong connection with the group	**1 2 3 4 5 6 7**
You identify strongly with the group	**1 2 3 4 5 6 7**
You feel no connection with the group	**1 2 3 4 5 6 7**
This exercise instructor embodies what the group stands for .	**1 2 3 4 5 6 7**
The exercise instructor is representative of members of the group	**1 2 3 4 5 6 7**
The exercise instructor is a model member of the group	**1 2 3 4 5 6 7**
The exercise instructor exemplifies what it means to be a member of the group	**1 2 3 4 5 6 7**
The exercise instructor promotes the interests of members of the group	**1 2 3 4 5 6 7**
The exercise instructor acts as a champion for the group.	**1 2 3 4 5 6 7**
The exercise instructor stands up for the group.	**1 2 3 4 5 6 7**
When the exercise instructor acts, he or she has the group's interests at heart.	**1 2 3 4 5 6 7**
The exercise instructor makes people feel as if they are part of the same group	**1 2 3 4 5 6 7**
The exercise instructor creates a sense of cohesion within the group.	**1 2 3 4 5 6 7**
The exercise instructor develops an understanding of what it means to be a member of the group.	**1 2 3 4 5 6 7**

The exercise instructor shapes members' perceptions of the group's values and ideals.	1 2 3 4 5 6 7
The exercise instructor devises activities that bring the group together.	1 2 3 4 5 6 7
The exercise instructor arranges events that help the group function effectively.	1 2 3 4 5 6 7
The exercise instructor creates structures that are useful for group members.	1 2 3 4 5 6 7
I will exert very high levels of effort in exercising	1 2 3 4 5 6 7
I want to impress the Exercise Instructor and others by how hard I work.	1 2 3 4 5 6 7
I am strongly motivated to develop as an exerciser	1 2 3 4 5 6 7
I am passionate and enthusiastic about exercise	1 2 3 4 5 6 7
I will do everything I can to fulfil my potential to exercise.	1 2 3 4 5 6 7

After watching the film, think about how you feel right <u>now</u> at this <u>moment</u> and rate how much do you feel the emotions below on a scale of 1 (very little/not at all), 2 (a little), 3 (moderately), 4 (quite a bit) to 5 (extremely)

Interested	1	2	3	4	5	Irritable	1	2	3	4	5
Distressed	1	2	3	4	5	Alert	1	2	3	4	5
Excited	1	2	3	4	5	Ashamed	1	2	3	4	5
Upset	1	2	3	4	5	Inspired	1	2	3	4	5
Strong	1	2	3	4	5	Nervous	1	2	3	4	5
Guilty	1	2	3	4	5	Determined	1	2	3	4	5
Scared	1	2	3	4	5	Attentive	1	2	3	4	5
Hostile	1	2	3	4	5	Jittery	1	2	3	4	5
Enthusiastic	1	2	3	4	5	Active	1	2	3	4	5
Proud	1	2	3	4	5	Afraid	1	2	3	4	5

Please answer the question below

Would you return to the exercise class you have just observed in the film?	Yes/No

Social Identity Leadership within Exercise Contexts Study

Consent and Information Form for Filming Participants

Thank you for agreeing to take part in my research project which forms part of my PhD research at the School of Life Sciences and Education at Staffordshire University.

What is the purpose of the study?

As part of this research, I am interested in the relationship between the leadership of exercise instructors and attitudes to exercise and well-being.

What will happen if I take part?

You are being asked to take part in the filming of two short films in which you will be filmed as a participant in an exercise class. The filming is likely to take up to half a day of filming.

Do I have to take part?

Participation is completely voluntary. You should only take part if you want to and choosing not to take part will not disadvantage you in any way.

What are the possible risks of taking part?

It is very unlikely that the study will cause any harm, as the class will be led by a trained instructor. However, please complete the PAR-Q form at the end of this consent form to ensure that you are physically fit enough to take part.

What will happen to the results of the study?

The information from the data will form part of a PhD study and could be used for publication in scientific journals or could be presented in scientific forums (conferences, seminars, workshops) or used for teaching purposes. All data will be presented anonymously.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact me, Jo Wood, using the following contact details:

joanne.wood@research.staffs.ac.uk

What if I have further questions, or if something goes wrong?

If this study has harmed you in any way, or if you wish to make a complaint about the conduct of the study you can contact the study supervisor:

Dr Matt Slater (Supervisor) – M.Slater@staffs.ac.uk

By agreeing to take part, you are indicating that you are at least 18 years old and that you

have read and understand the above information and you have signed the PAR-Q form below.

☑ **By ticking this box, I consent to take part in this study**

PAR-Q (PHYSICAL ACTIVITY READINESS QUESTIONNAIRE)

- Has your doctor ever said that you have a bone/joint problem, such as arthritis, that might be, aggravated by exercise? YES ☐ NO ☐

- Do you have high blood pressure? YES ☐ NO ☐

- Do you have low blood pressure? YES ☐ NO ☐

- Do you have Diabetes or any other metabolic disease? YES ☐ NO ☐

- Has your doctor ever said that you have raised cholesterol? YES ☐ NO ☐

- Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by your doctor? YES ☐ NO ☐

- Have you ever felt pain in your chest when you do physical exercise? YES ☐ NO ☐

- Have you ever suffered from shortness of breath at rest or with mild exertion? YES ☐ NO ☐

- Is there any history of Coronary Heart Disease in your family? YES ☐ NO ☐

- Do you frequently feel faint, or have spells of dizziness or lost consciousness? YES ☐ NO ☐

- Are you, or is there any possibility that you might be, pregnant? YES ☐ NO ☐

IF you answered 'Yes' to **one or more** questions, **please** consult your doctor IF you have not already done so. Show your doctor this form. Ask your doctor's advice on your suitability for physical activity.

Please give details you feel are relevant

_____

_____

Assumption of Risk

I hereby state that I have read and understood the questions above. I also state that I wish to participate in activities, which may include

aerobic exercise, resistance exercise and stretching. Furthermore, I hereby confirm that I am voluntarily engaging in an acceptable level of exercise.

Participant's Name: Participant's Signature   Date

Email:

Telephone:

Additional note if applicable: I have taken medical advice and my doctor has agreed that I should exercise.

Signature:_____   Date:

Debrief Document

Social Identity Leadership in Exercise Contexts

Thank you for taking part in this Study.

In this experimental study we were considering the impact of two different leadership approaches on exercise participants. We anticipated in the study that one of the leadership styles (the SiL approach) would result in higher levels of mobilisation of effort and positive affect, compared to the other leadership style based on an exerciser instructor's professional training. It was also anticipated that these results would be the same for both exercisers and non-exercisers.

As discussed in the consent form, your data will be processed in accordance with the data protection law and will comply with the General Data Protection Regulation 2016 (GDPR). Your results will not be identifiable to anyone. The data you provide will be kept anonymous at all times and only myself and my supervisors (Dr Matt Slater and Dr Jamie Barker) will see your anonymized data. We do not ask for your name or any other identifying information. The data will be kept secure and stored for up to 10 years in line with University policy.

Please also remember that you are free withdraw at any point of the study, without having to give a reason. Withdrawing from the study will not affect you in any way. You can withdraw your data from the study up until **30th September 2019**, after which withdrawal of your data will no longer be possible because the data will have been processed at this point. If you decide to withdraw at any point up until this date, please email **joanne.wood@research.staffs.ac.uk** with the memorable unique participant identifier code you have provided on the demographics form.

If you choose to withdraw from the study, we will not retain any information that you have provided us as a part of this study.

If you feel that this study has harmed you in any way, or if you wish to make a complaint about the conduct of the study you can contact the study supervisor:

Dr Matt Slater (Supervisor) – M.Slater@staffs.ac.uk

If you would like to have the full results of this study, these can be obtained by from the researcher joanne.wood@research.staffs.ac.uk.

EXERCISE QUESTIONNAIRES
Title of Research Project: Social Identity Leadership within Exercise Contexts Study

Researcher: Jo Wood

Imagine that you were taking part as a member of the exercise group in the film you have just watched and complete the questions with this in mind below.

Consider each item and rate them on a 7-point scale from **1 (I do not agree at all)** to **7 (I agree completely)**

Do not spend too long on these statements as we are interested in your immediate response.

You feel a strong connection with the group	**1 2 3 4 5 6 7**
You identify strongly with the group	**1 2 3 4 5 6 7**
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This exercise instructor embodies what the group stands for .	**1 2 3 4 5 6 7**
The exercise instructor is representative of members of the group	**1 2 3 4 5 6 7**
The exercise instructor is a model member of the group	**1 2 3 4 5 6 7**
The exercise instructor exemplifies what it means to be a member of the group	**1 2 3 4 5 6 7**
The exercise instructor promotes the interests of members of the group	**1 2 3 4 5 6 7**
The exercise instructor acts as a champion for the group.	**1 2 3 4 5 6 7**
The exercise instructor stands up for the group.	**1 2 3 4 5 6 7**
When the exercise instructor acts, he or she has the group's interests at heart.	**1 2 3 4 5 6 7**
The exercise instructor makes people feel as if they are part of the same group	**1 2 3 4 5 6 7**
The exercise instructor creates a sense of cohesion within the group.	**1 2 3 4 5 6 7**
The exercise instructor develops an understanding of what it means to be a member of the group.	**1 2 3 4 5 6 7**

The exercise instructor shapes members' perceptions of the group's values and ideals.	1 2 3 4 5 6 7
The exercise instructor devises activities that bring the group together.	1 2 3 4 5 6 7
The exercise instructor arranges events that help the group function effectively.	1 2 3 4 5 6 7
The exercise instructor creates structures that are useful for group members.	1 2 3 4 5 6 7
I will exert very high levels of effort in exercising	1 2 3 4 5 6 7
I want to impress the Exercise Instructor and others by how hard I work.	1 2 3 4 5 6 7
I am strongly motivated to develop as an exerciser	1 2 3 4 5 6 7
I am passionate and enthusiastic about exercise	1 2 3 4 5 6 7
I will do everything I can to fulfil my potential to exercise.	1 2 3 4 5 6 7

After watching the film, think about how you feel right <u>now</u> at this <u>moment</u> and rate how much do you feel the emotions below on a scale of 1 (very little/not at all), 2 (a little), 3 (moderately), 4 (quite a bit) to 5 (extremely)

Interested	1	2	3	4	5	Irritable	1	2	3	4	5
Distressed	1	2	3	4	5	Alert	1	2	3	4	5
Excited	1	2	3	4	5	Ashamed	1	2	3	4	5
Upset	1	2	3	4	5	Inspired	1	2	3	4	5
Strong	1	2	3	4	5	Nervous	1	2	3	4	5
Guilty	1	2	3	4	5	Determined	1	2	3	4	5
Scared	1	2	3	4	5	Attentive	1	2	3	4	5
Hostile	1	2	3	4	5	Jittery	1	2	3	4	5
Enthusiastic	1	2	3	4	5	Active	1	2	3	4	5
Proud	1	2	3	4	5	Afraid	1	2	3	4	5

Please answer the question below

Would you return to the exercise class you have just observed in the film?	**Yes/No**

LINKS TO SLIDESHOWS

Control Slideshow https://vimeo.com/457684762/a8249b01c3?share=copy

High IL Slideshow https://vimeo.com/457690591/fc39d9e096?share=copy

APPENDIX 3: ETHICAL APPROVAL, CONSENT FORMS, QUESTIONNAIRES, PARTICIPANT RECRUITMENT LITERATURE, IDENTITY LEADERSHIP WORKSHOP INFORMATION, SOCIAL VALIDATION QUESTIONNAIRE FOR EXERCISERS, POST-INVENTION INTERVIEW GUIDE FOR EXERCISE INSTRUCTORS

Life Sciences and Education

ETHICAL APPROVAL FEEDBACK

Researcher name:	Jo Wood
Title of Study:	Social Identity Leadership in Exercise Contexts
Status of approval:	Approved

Thank you for addressing the committee's comments. Your research proposal has now been approved by the Ethics Panel and you may commence the implementation phase of your study. You should note that any divergence from the approved procedures and research method will invalidate any insurance and liability cover from the University. You should, therefore, notify the Panel of any significant divergence from this approved proposal.

You should arrange to meet with your supervisor for support during the process of completing your study and writing your dissertation.

When your study is complete, please send the ethics committee an end of study report. A template can be found on the ethics BlackBoard site.

Signed: Prof. Roozbeh Naemi   **Date: 19.03.2021**

Ethics Coordinator
School of Life Sciences and Education

(Information Forms, Consent, Demographics and Questionnaires to put on Qualtrics)

Social Identity Leadership within Exercise Contexts Study

Information and Consent Form - Group Exercise Instructors

I would like to invite you to participate in this research project which forms part of my PhD research at the School of Life Sciences and Education at Staffordshire University. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

As part of this research, I am interested in applying a model of leadership to exercise contexts and to consider the impact of this both on exercise instructors' leadership and well-being and how this influences their exercise client's attitudes to exercise, well-being, and physical health. By taking part in this study, you will help us to better understand these relationships, and this could help to develop strategies to encourage people to increase their levels of activity.

Why have I been invited to take part?

You have been invited to take part as an adult over the age of 18 and must currently be working with exercisers as a qualified Group Exercise Instructor.

What will happen if I take part?

Your participation will involve consenting to the study, giving some basic demographic information, attending some short online training sessions, completing a few questionnaires, collecting data from your exercise clients (consent, demographics, completed questionnaires and behavioral health markers) and being interviewed at the end of the study. The study will run over a period of 12 weeks.

Do I have to take part?

Participation is completely voluntary. You should only take part if you want to and choosing not to take part will not disadvantage you in any way. Once you have read the information sheet, please contact us if you have any questions that will help you decide about taking part. If you decide to take part, we will ask you to give your consent below.

What are the possible risks of taking part?

It is very unlikely that the study will cause any harm as the program does not cover sensitive topics. However, despite this, participation in the study may cause emotional distress and anxiety given that you are answering questions about your own performance and well-being, which could have some impact.

In the unexpected event that you become distressed when taking part in the research, you can contact the lead researcher, Jo Wood (joanne.wood@research.staffs.ac.uk), who is a chartered psychologist (CPsychol.) with the British Psychological Society working in mental health/Well-being and a qualified Personal Trainer and Exercise Instructor, and she will be able to advise who you to speak to get further help and support. You can also contact the research supervisor, Dr Matt Slater (M.Slater@staffs.ac.uk). If you would prefer to speak to someone outside of the research project, you can contact Mind on: 0300 123 3393/ info@mind.org.uk or visit their website http://www.mind.org.uk for more information.

What are the possible benefits of taking part?

Taking part in the Study will allow you to develop and reflect on your leadership skills as a Group Exercise Instructor and could help to enhance your existing practice. Also, by taking part you will have the opportunity to collaborate with an experienced Psychologist who specializes in Sports and Exercise Psychology, as well as contributing to the general research which seeks to combat inactivity in various populations.

Data handling and confidentiality

Your data will be processed in accordance with the data protection law and will comply with the General Data Protection Regulation 2016 (GDPR). Your results will not be identifiable to anyone. The data you provide will be kept anonymous at all times and only myself and my supervisors (Dr Matt Slater and Dr Jamie Barker) will see your anonymised data. We do not ask for your name or any other identifying information. The data will be kept secure and stored for up to 10 years in line with University policy.

Data Protection Statement

The data controller for this project will be Staffordshire University. The University will process your personal data for the purpose of the research outlined above. The legal basis for processing your personal data for

research purposes under the data protection law is a 'task in the public interest' You can provide your consent for the use of your personal data in this study by completing the consent form that has been provided to you.

You have the right to access information held about you. Your right of access can be exercised in accordance with the General Data Protection Regulation. You also have other rights including rights of correction, erasure, objection, and data portability. Questions, comments, and requests about your personal data can also be sent to the Staffordshire University Data Protection Officer. If you wish to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk.

What if I change my mind about taking part?

You are free to withdraw at any point of the study, without having to give a reason. Withdrawing from the study will not affect you in any way. You can withdraw your data from the study up until **30th September 2021**, after which withdrawal of your data will no longer be possible because the data will have been processed at this point. If you decide to withdraw at any point up until this date, please email **joanne.wood@research.staffs.ac.uk** with the memorable unique participant identifier code you have provided on the demographics form.

If you choose to withdraw from the study, we will not retain any information that you have provided us as a part of this study.

What will happen to the results of the study?

The information from the data will form part of a PhD study and could be used for publication in scientific journals, be presented in scientific forums (conferences, seminars, workshops) or used for teaching purposes from 2022 onwards. All data will be presented anonymously.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact me, Jo Wood, using the following contact details:

joanne.wood@research.staffs.ac.uk

What if I have further questions, or if something goes wrong?

If this study has harmed you in any way, or if you wish to make a complaint about the conduct of the study you can contact the study supervisor or the Chair of the Staffordshire University Ethics Committee for further advice and information:

Dr Matt Slater (Supervisor) – M.Slater@staffs.ac.uk

Dr Tim Horne (Chair of Ethics Committee):

Research, Innovation, and Impact Services
Cadman Building, Staffordshire University, College Road Stoke-on-TrentST4 2DF
Tim.horne@staffs.ac.uk
+441782295722

Date: 1/3/21

Please tick (√) each box if you agree with each statement:

I confirm that I have read and understood the above and the recruitment information leaflet dated 1/3/21 for the above study. I have had the opportunity to ask questions and these have been fully answered.

I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason.

I agree to the requirements of taking part.

I consent voluntarily to take part in the above study.

Print Name   Signature   Date

Social Identity Leadership within Exercise Contexts Study

Information and Consent Form (For Group Exercise Instructors' Exercise Clients)

I would like to invite you to participate in this research project which forms part of my PhD research at the School of Life Sciences and Education at Staffordshire University. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

As part of this research, I am interested in applying a model of leadership to exercise contexts and to consider the impact of this both on exercise instructors' leadership and well-being and how this influences their exercise client's attitudes to exercise, well-being, and physical health. By taking part in this study, you will help us to better understand these relationships, and this could help to develop strategies to encourage people to increase their levels of activity.

Why have I been invited to take part?

You have been invited to take part as an adult over the age of 18, who is currently part of a group exercise class.

What will happen if I take part?

Your participation will involve consenting to the study, giving some basic demographic information, the completion of a small number of questionnaires and being asked some questions at the end of the study. The study will run over a period of 12 weeks.

Do I have to take part?

Participation is completely voluntary. You should only take part if you want to and choosing not to take part will not disadvantage you in any way. Once you have read the information sheet, please contact us if you have any questions that will help you decide about taking part. If you decide to take part, we will ask you to give your consent below.

What are the possible risks of taking part?

It is very unlikely that the study will cause any harm as the program does not cover sensitive topics. However, despite this, participation in the study may cause emotional distress and anxiety given that you are answering questions about your

own performance and well-being, which could have some impact.

In the unexpected event that you become distressed when taking part in the research, you can contact the lead researcher, Jo Wood (joanne.wood@research.staffs.ac.uk), who is a chartered psychologist (CPsychol.) with the British Psychological Society working in mental health/Well-being and a qualified Personal Trainer and Exercise Instructor, and she will be able to advise who you to speak to get further help and support. You can also contact the research supervisor, Dr Matt Slater (M.Slater@staffs.ac.uk). If you would prefer to speak to someone outside of the research project, you can contact Mind on: 0300 123 3393/ info@mind.org.uk or visit their website http://www.mind.org.uk for more information.

What are the possible benefits of taking part?

Taking part in the Study will allow you to contribute to the research which seeks to combat inactivity in various populations (e.g., mid-life and older adult populations).

Data handling and confidentiality

Your data will be processed in accordance with the data protection law and will comply with the General Data Protection Regulation 2016 (GDPR). Your results will not be identifiable to anyone. The data you provide will be kept anonymous at all times and only myself and my supervisors (Dr Matt Slater and Dr Jamie Barker) will see your anonymised data. We do not ask for your name or any other identifying information. The data will be kept secure and stored for up to 10 years in line with University policy.

Data Protection Statement

The data controller for this project will be Staffordshire University. The University will process your personal data for the purpose of the research outlined above. The legal basis for processing your personal data for research purposes under the data protection law is a 'task in the public interest' You can provide your consent for the use of your personal data in this study by completing the consent form that has been provided to you.

You have the right to access information held about you. Your right of access can be exercised in accordance with the General Data Protection Regulation. You also have other rights including rights of correction, erasure, objection, and data portability. Questions, comments, and requests about your personal data can also be sent to the Staffordshire University Data Protection Officer. If you wish to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk.

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If you choose to withdraw from the study, we will not retain any information that you have provided us as a part of this study.

What will happen to the results of the study?

The information from the data will form part of a PhD study and could be used for publication in scientific journals or could be presented in scientific forums (conferences, seminars, workshops) or used for teaching purposes from 2022 onwards. All data will be presented anonymously.

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joanne.wood@research.staffs.ac.uk

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If this study has harmed you in any way, or if you wish to make a complaint about the conduct of the study you can contact the study supervisor or the Chair of the Staffordshire University Ethics Committee for further advice and information:

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Research, Innovation, and Impact Services
Cadman Building, Staffordshire University, College Road Stoke-on-TrentST4 2DF
Tim.horne@staffs.ac.uk
+441782295722

Date: 1/3/21

Please tick (√) each box if you agree with each statement:

I confirm that I have read and understood the above and the recruitment
information leaflet letter dated 1/3/21 for the above study. I have had the
opportunity to ask questions and these have been fully answered.

☐

I understand that my participation is voluntary and that I am
free to withdraw at any time without giving a reason.

☐

I agree to the requirements of taking part.

☐

I consent voluntarily to take part in the above study.

☐

Print Name   Signature   Date

Demographics for Group Exercise Instructors

Gender
Male
Female
Other

Age

18-24

25-34

35-44

45-54

55-64

65+

Ethnicity (Please State)

How many years' experience do you have as a Group Exercise Instructor?

1
2
3
4
5 +

How many classes/clients do you have per week

1
2
3
4
5
6
7
8
9
10+

Demographics for Group Exercise Participants

Gender

Male

Female

Other

Age

18-24

25-34

35-44

45-54

55-64

65+

Ethnicity (Please State)

How many hours a week on average do you spend on moderate/vigorous exercise/activity? (e.g., swimming, group exercise, PT, dancing, circuit training, recreational football, brisk walking, gardening etc.)

None

Less than 1 hour

1 to 2 hours

2.5 to 3 hours

3.5 to 4 hours

4.5 to 5 hours

5.5 to 6 hours

6 hours+

EXERCISE QUESTIONNAIRES – For Group Exercise Instructors

Title of Research Project: Social Identity Leadership within Exercise Contexts Study
Researcher: Jo Wood

Consider each item and rate them on a 7-point scale from **1 (I do not agree at all)** to **7 (I agree completely)**

Do not spend too long on these statements as we are interested in your immediate response.

I embody what the group stands for. .	**1 2 3 4 5 6 7**
I am representative of members of the group.	**1 2 3 4 5 6 7**
I am a model member of the group.	**1 2 3 4 5 6 7**
I exemplify what it means to be a member of the group.	**1 2 3 4 5 6 7**
I promote the interests of members of the group.	**1 2 3 4 5 6 7**
I act as a champion for the group.	**1 2 3 4 5 6 7**
I stand up for the group.	**1 2 3 4 5 6 7**
When I act, I have the group's interests at heart.	**1 2 3 4 5 6 7**
I make people feel as if they are part of the same group.	**1 2 3 4 5 6 7**
I create a sense of cohesion within the group.	**1 2 3 4 5 6 7**
I develop an understanding of what it means to be a member of the group.	**1 2 3 4 5 6 7**
I shape members' perceptions of the group's values and ideals.	**1 2 3 4 5 6 7**
I devise activities that bring the group together.	**1 2 3 4 5 6 7**
I arrange events that help the group function effectively.	**1 2 3 4 5 6 7**
I create structures that are useful for group members.	**1 2 3 4 5 6 7**

The following questions are related to mental well-being, meaning feeling good and functioning well. Read through the following statements and tick the box that best describes your thoughts and feelings over the last two weeks from a) none of the time to e) all of the time.

I've been feeling optimistic about the future	A B C D E
I've been feeling useful	A B C D E
I've been feeling relaxed	A B C D E
I've been feeling interested in other people	A B C D E
I've had energy to spare	A B C D E
I've been dealing with problems well	A B C D E
I've been thinking clearly	A B C D E
I've been feeling good about myself	A B C D E
I've been feeling close to other people	A B C D E
I've been feeling confident	A B C D E
I've been able to make up my mind about things	A B C D E
I've been feeling loved	A B C D E
I've been interested in new things	A B C D E
I've been feeling cheerful	A B C D E

EXERCISE QUESTIONNAIRES – For the Exercisers

Title of Research Project: Social Identity Leadership within Exercise Contexts Study

Researcher: Jo Wood

Before you start, please can you write down a unique identifier code in the box below, using your initials and year of birth e.g., JW1967, to allow your data to be deleted should you decide to withdraw your questionnaire data, and also to put you into the prize draw. You need to complete 3 short questionnaires.

My Identifier Code is

Consider each item and rate them on a 7-point scale from **1 (I do not agree at all)** to **7 (I agree completely)**

Do not spend too long on these statements as we are interested in your immediate response.

You feel a strong connection with the group.	1 2 3 4 5 6 7
You identify strongly with the group.	1 2 3 4 5 6 7
You feel no connection with the group.	1 2 3 4 5 6 7
This exercise instructor embodies what the group stands for. .	1 2 3 4 5 6 7
The exercise instructor is representative of members of the group.	1 2 3 4 5 6 7
The exercise instructor is a model member of the group.	1 2 3 4 5 6 7
The exercise instructor exemplifies what it means to be a member of the group.	1 2 3 4 5 6 7
The exercise instructor promotes the interests of members of the group.	1 2 3 4 5 6 7
The exercise instructor acts as a champion for the group.	1 2 3 4 5 6 7
The exercise instructor stands up for the group.	1 2 3 4 5 6 7
When the exercise instructor acts, he or she has the group's interests at heart.	1 2 3 4 5 6 7
The exercise instructor makes people feel as if they are part of the	1 2 3 4 5 6 7

same group	
The exercise instructor creates a sense of cohesion within the group.	1 2 3 4 5 6 7
The exercise instructor develops an understanding of what it means to be a member of the group.	1 2 3 4 5 6 7
The exercise instructor shapes members' perceptions of the group's values and ideals.	1 2 3 4 5 6 7
The exercise instructor devises activities that bring the group together.	1 2 3 4 5 6 7
The exercise instructor arranges events that help the group function effectively.	1 2 3 4 5 6 7
The exercise instructor creates structures that are useful for group members.	1 2 3 4 5 6 7
I will exert very high levels of effort in exercising.	1 2 3 4 5 6 7
I want to impress the Exercise Instructor and others by how hard I work.	1 2 3 4 5 6 7
I am strongly motivated to develop as an exerciser.	1 2 3 4 5 6 7
I am passionate and enthusiastic about exercise.	1 2 3 4 5 6 7
I will do everything I can to fulfil my potential to exercise.	1 2 3 4 5 6 7

The following questions are related to mental well-being, meaning feeling good and functioning well. Read through the following statements and tick the box that best describes your thoughts and feelings over the last two weeks from a) none of the time to e) all of the time.

I've been feeling optimistic about the future	A B C D E
I've been feeling useful	A B C D E
I've been feeling relaxed	A B C D E
I've been feeling interested in other people	A B C D E
I've had energy to spare	A B C D E
I've been dealing with problems well	A B C D E

I've been thinking clearly	A B C D E
I've been feeling good about myself	A B C D E
I've been feeling close to other people	A B C D E
I've been feeling confident	A B C D E
I've been able to make up my mind about things	A B C D E
I've been feeling loved	A B C D E
I've been interested in new things	A B C D E
I've been feeling cheerful	A B C D E

Consider the item below and rate yourself between 1 and 5
(with 1 being poor to 5 being excellent)

How would you rate your overall health?	1 2 3 4 5

Before/After attending your exercise session, think about how you feel right <u>now</u> at this <u>moment</u> and rate how much do you feel the emotions below on a scale of 1 (very little/not at all), 2 (a little), 3 (moderately), 4 (quite a bit) to 5 (extremely)

Interested	**1**	**2**	**3**	**4**	**5**	Irritable	**1**	**2**	**3**	**4**	**5**
Distressed	**1**	**2**	**3**	**4**	**5**	Alert	**1**	**2**	**3**	**4**	**5**
Excited	**1**	**2**	**3**	**4**	**5**	Ashamed	**1**	**2**	**3**	**4**	**5**
Upset	**1**	**2**	**3**	**4**	**5**	Inspired	**1**	**2**	**3**	**4**	**5**
Strong	**1**	**2**	**3**	**4**	**5**	Nervous	**1**	**2**	**3**	**4**	**5**
Guilty	**1**	**2**	**3**	**4**	**5**	Determined	**1**	**2**	**3**	**4**	**5**
Scared	**1**	**2**	**3**	**4**	**5**	Attentive	**1**	**2**	**3**	**4**	**5**
Hostile	**1**	**2**	**3**	**4**	**5**	Jittery	**1**	**2**	**3**	**4**	**5**
Enthusiastic	**1**	**2**	**3**	**4**	**5**	Active	**1**	**2**	**3**	**4**	**5**
Proud	**1**	**2**	**3**	**4**	**5**	Afraid	**1**	**2**	**3**	**4**	**5**

A study of
leadership
training for
group
exercise
instructors
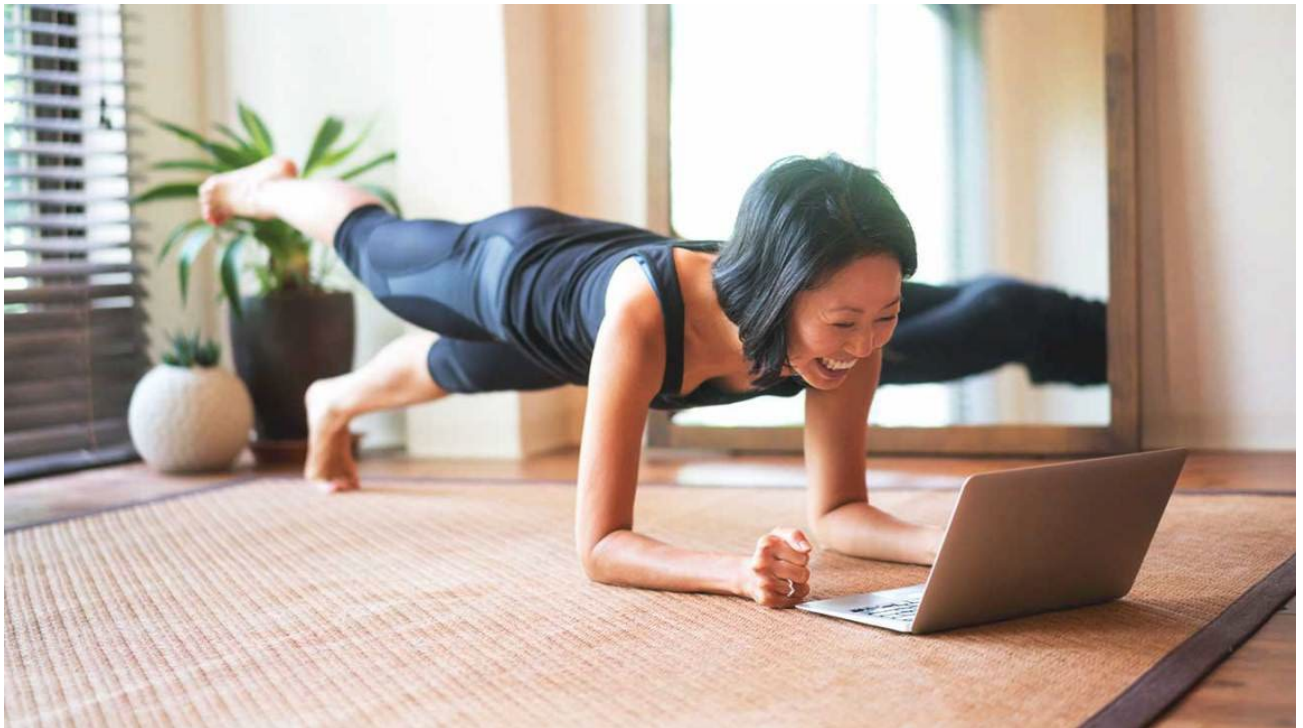
RECRUITMENT LEAFLET

Part I: Information Sheet

Introduction

I am an experienced Chartered Psychologist working both in sports and exercise and mental health. I am conducting a research project based within Exercise Psychology, which is being supervised by Dr Matt Slater from Staffordshire University and Dr Jamie Barker from Loughborough University.

Invitation to Take Part

As a Group Exercise Instructor, you are invited to take part in this study, which aims to develop and evaluate the effectiveness of leadership training for Group Exercise Instructors and to consider whether this training can influence your practice and the behaviour and beliefs and your exerciser clients.

The Study is looking to recruit 2 Group Exercise Instructors who currently lead exercise groups.

Background to Study

Despite known benefits of physical activity for physical and psychological health, it is estimated that a quarter of all adults worldwide (27.5%) fail to meet the World Health Organisation's recommendations (i.e., at least 150 minutes of moderate intensity or 75 minutes of vigorous activity per week; Guthold et al., 2018). Although programmes have been introduced to tackle this problem, inactivity remains high and there is some indication that levels are rising in high income countries (Guthold et al., 2018). Researchers have argued that physical activity/exercise programmes tend to focus on individual factors and have perhaps underestimated the importance of social factors on the behaviours/attributes of group members, including those relating to group identity and the influence of the exercise leader (Grant, Hogg & Crano, 2015; Fielding & Hogg, 1997). Recently there has been some interest in applying the social identity leadership model (Haslam et al., 2020) to exercise. Previously applied to sport settings (Fransen et al., 2020; Slater et al., 2020), there is some evidence to suggest that this leadership approach could positively influence exercise clients in a variety of ways (i.e., adherence to exercise, motivation etc.).

This study aims to extend and apply this model within an *exercise* context.

How long is the Study?

The study will run in total for a period of 16 weeks (working with 2 instructors individually for a period of 8 weeks).

What's Involved?

Should you decide to participate you will be asked to commit to the following:

- Receive one-to-one Leadership training and on-going coaching with an accredited Psychologist (Zoom/Skype/Teams) over an 8-week period, which will consist of 3 short training sessions (lasting up to 1 hour).

- The training includes a focus on developing relationships, use of inclusive language, encouraging group cohesion etc.

- To complete some short questionnaires at the beginning and end of the study and to give some demographic information.

- To have an interview discussion at the end of the study to consider how you found the programme.

- To recruit between 10 to 20 your group exercise clients who will also be involved in evaluating the programme. (Clients will be required to read some information and complete consent forms, which will be provided).

- To aid in the collection of some basic demographic data, completed questionnaires and performance data from your group clients at the beginning and end of the study (questionnaires will be completed via an online Qualtrics link, so you would only be required to remind the exercisers taking part to complete them).

Benefits of Taking Part

You will have the opportunity to take part in a published research project is looking to extend knowledge within the field of exercise psychology and being supported by a qualified psychologist.

There is an opportunity to develop skills around Leadership, a neglected part of Group Exercise Instructor education in terms of developing skills to

The experience may help you further develop and strengthen your client base.

Any Disadvantages?

As with participating in any research study, taking part will require you to give up some of your available time.

Ethics

If you decide to take part, you will be given a consent and information form and you will be asked to sign this form to indicate consent.

This study has been ethically approved by Staffordshire University.

Confidentiality

All information collected will remain strictly confidential. To ensure complete anonymity, names of participants will not be used. Papers will be kept in a locked

cabinet and any information held on a computer will be encrypted. This information will be kept for the prescribed period of 10 years before being destroyed/deleted. More information regarding confidentiality and data handling is given in the consent and information form.

Can I see the results?

Participants will receive a copy of the study and it is planned that the study will be published in a peer reviewed journal and will hopefully generate further research.

Contact Details

For any further information please contact:

Dr Jo Wood at joanne.wood@research.staffs.ac.uk or on 07880794494. If there are any

concerns or further questions, contact: Dr Matt Slater at M.Slater@staffs.ac.uk

1.3.21

Dear Group Exerciser,

I am currently a PhD student in the School of Life Sciences and Education at Staffordshire University, and I am conducting research on leadership training for Group Exercise Instructors and how this training can help group exercisers get the most from their exercise experience.

Your Group Instructor (Name) has agreed to take part in my research, and we are looking for members of their exercise groups to take part. In terms of commitment, this would mean signing a consent form, completing two sets of questionnaires and a fitness/health test at week 1 and week 8 of the leadership study, taking part in an exercise group discussion, and being asked some questions at the end. The consent form and the questionnaires will be sent to you online and are completely anonymous.

Taking part would give you an opportunity to take part in a research project, which will hopefully benefit exercisers and lead to further research. Also, all those taking part will be put in a draw for Amazon vouchers at the end of the study.

Please let your Instructor know if you would like to take part and the initial forms will be sent to you. If you have any questions, please give me a call on 07880794494.

Best wishes,

Dr Jo Wood

EXAMPLE OF IDENTITY LEADERSHIP WORKSHOP
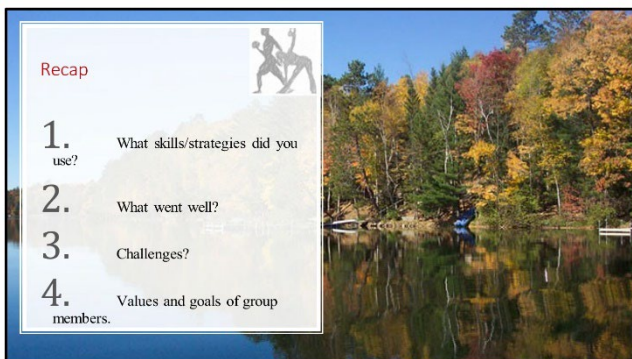
Instructor Identity leadership Training
Workshop 2 – Representing and Realising

Aim

- Recap on Stage 2 – REFLECTING and Values
- Stage 3 and 4 – REPRESENTING and REALISING
- *Skills* and <u>Strategies</u>

Recap

1. What skills/strategies did you use?
2. What went well?
3. Challenges?
4. Values and goals of group members.

Stage 3 - Representing

- to encourage a sense of <u>being a group</u> and being *part* of this, putting the group first and promoting the group's values and goals etc.

Stage 3 – Representing Skills and Strategies

1. **Give Feedback** from the *Values* exercise e.g.,"Thanks for taking part in the exercise a couple of weeks ago. From what you said the Group really values Fitness, Friendship and Fun"

Display the posters around the room to remind them about what the group values *(and put them up every session)*.

Stage 3 – Representing Skills and Strategies

2. Language – "we" and "us", not "I" and "you"

Stage 3 – Representing Skills and Strategies

3. Reinforce that people belong to the exercise group by referring to "*the group*" e.g., *using posters*, number of push-ups as a group, closed Face-Book/WhatsApp group?

Make *verbal comparisons* with the "out group" (those who do not exercise and are not benefitting from the experience)

Stage 3 – Representing Skills and Strategies

4. <u>Model</u> and embody the values and what you have learned is so important to the group – be the most friendly, fun, supportive etc.

Stage 4 - Realising

- to lead activities that are in line with the group's shared values and goals.

Stage 4 - Stage Realising Skills and Strategies

1. Ensure exercise programme matches the values/goals of the group

- Consider goals – lose weight, more flexibility, improved cardio-vascular fitness?
- Values & *Needs* within the group – friendship, novelty, gradual improvement, fitness, fun?
- What are your goals for the group? *How* can you put these into practice?
- **Match Together**

Stage 4 – Realising Skills and Strategies

2. Give Praise and Encouragem ent in line with shared values/goals e.g., we've put in some great work today with getting fitter etc.

Stage 4 – Realising Skills and Strategies

3. Ask for feedback from the group to develop a collaborative approach

- Get Feedback at the end of the session – e.g., how did the group find the session?
- What did class members *enjoy* and want to do more of next session?

Re-cap Representing Strategies and Skills

- Feedback of Values
  - Use of **language**
    - Promote the group
      - Model/embody the values
        - Continue with the REFLECTING

- FOCUS ON REPRESENTING IN NEXT WEEK'S SESSION (Monday 28th June)

Re-cap Realising Strategies and Skills

- Linking exercise sessions to goals/values
  - Praise and Encouragement linked to values
    - Feedback
      - Continue with the REFLECTIN G

- ADD THESE STRATEGIES in 2 WEEKS SESSION (Monday 5th July)

Questions

FIT FOR LIFE

FUN

FRIENDSHIP

Social Validation Questionnaire for Group Exercisers

It would also be great to get some feedback from you about the 8 weeks of the study. Don't worry, there are no right or wrong answers to this, I would just really like to read your comments!

1. How did you find taking part in the study?

2. Did you notice anything different about Kris over the 8 weeks? If so, what?

3. Did anything change for the group over the 8 weeks? Again, if so, what?

4. Did anything change for you over the 8 weeks? Again, if so, what?

5. What does your exercise group stand for as a group?

6. Has how you think about your exercise group changed over the 8 weeks of the study? If so, please provide as much detail as you can.

Thank you so much for taking part in my study, much appreciated!

Post-Intervention Interview Guide

Name:

Interview date:

Time begun:

Time ended:

Duration of Interview:

Introduction/Aim

Thank you for taking part in the study.

The Study looked to see whether we could implement the 5Rs of Identity Leadership in exercise settings and whether an instructor using this approach would lead to an increase in group identity, mobilisation of effort, well-being and fitness etc. During this session I would like to ask you more about how you found taking part in the study, your thoughts on implementing the identity leadership intervention and your views on future use of the 5Rs in exercise settings.

1. Setting the Scene

Before we start, I would like to ask you more about your background as an exercise instructor.

1.1 What made you decide to become an exercise instructor?

1.2 How long have you been an exercise instructor?

1.3 What kind of groups do you instruct (and have you instructed)?

1.4 What training did you complete to be an instructor?

1.5 How much of this training focused on leadership?

Supplementary Questions

If leadership training was not part of your training, what are you views on this?

2. The Study

Now I want to ask you some questions about being part of the study.

2.1 What was it like to take part?

2.2 Were the procedures involved acceptable i.e. the workshops/questionnaire collection etc.

2.3 Did you feel that you had enough support during the study?

2.4 Were there any difficulties/issues being part of the study.

2.5 What do you think about the length of the study? Too short, long, right length?

3. The Intervention

If we can now focus on the 5R's Identity Leadership intervention.

3.1 How did you find the Leadership training intervention?

3.2 What did you learn?

3.3 What were the main elements of the 5Rs model that you applied?

3.4 When you were implementing the intervention, how did it make you feel?

3.5 Where there any elements that were difficult to apply in an exercise setting?

3.6 To what extent did the Leadership intervention change your practice? If yes, how did it change your practice?

3.7 From your perspective was the intervention successful, or not? What makes you say this?

3.8 What impact did you feel that the intervention had on the group? Did it have a positive or negative impact?

3.9 Are you still using aspects of the interventions since the end of the study, if so, what elements of the model are you using?

4. Model Suitability for future use

Moving on to consider the future use of the 5Rs in exercise settings:

4.1Would you recommend this approach to other exercise instructors?

4.2.Would this type of training be suitable for all exercise instructors?

4.3. Could it be applied with any exercise group? If not, why not.

4.4 Can you think of any particular exercise populations that might benefit from this approach?

5. Any other Comments?

5.1 Is there anything that we have talked about that you would like to mention/discuss?

Thank you very for your participation in this session and the study as a whole. The next step will be for me to produce a transcript of the interview and then I will send you a copy to make sure that you are happy that it accurately reflects the conversation. If you have any questions or want to add anything in the meantime, please let me know.