

Deeds Not Words. Finding and triggering action mechanisms in the fight against climate change. Action research in a sporting community.

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ABSTRACT

This paper outlines the activities of a twenty year action research project. Starting with Suffolk Low Carbon Champions in 2010, it ends with Suffolk Carbon Net Zero in 2030. Originally applying ideas from balanced scorecards to understand organisations in the small business fraternity, work now uses core drives from gamification to motivate individuals in the amateur sporting community. Much has happened in between, and realist evaluation methods are used to develop, test and refine theory to guide future interventions.

INTRODUCTION

In 2010, Suffolk County Council launched an innovative carbon emissions reduction programme called Low Carbon Champions. Although the subsequent evaluation was empirically positive, many questions remained unanswered in actual and real domains.

Subsequent programmes built on this original work using iterative action research cycles. The ability to quickly make evidence-informed interventions enabled significant ground to be covered with limited resources.

After nearly two years of preparation and investment in supporting technologies, the latest programme – Carbon Champions – is being deployed. This paper describes both previous programmes and current activities.

RESEARCH INTEGRITY

Research Question

Current action to reduce and reverse climate change is inadequate (Harvey 2023). Until this is addressed at national level, individuals have limited ability to make change, and working at community level might encourage more people, to take more action (Carmichael 2022). This work tests this hypothesis through action research.

Research Context

Addressing sustainability through sport is seen as a useful way to engage people with climate change (Wilby, Orr, Depledge, *et al.* 2023). Previous programmes in sporting communities combined with Suffolk county's green ambitions justifies researching this subject, in this location.

Research Theory

Research is based on critical realist theory. This assumes an objective ontology where the natural and social worlds exist independently of human knowledge, and a subjective epistemology where knowledge is socially constructed (Bhaskar 1978). Mixed methodology is permitted without paradigm incommensurability and uses abduction, retrodution and corroboration to suggest and explain underlying mechanisms (Sayer 2003).

Research Methods

Realist Evaluation asks not just whether something worked, but who it worked for, why and how (Pawson & Tilley 1997). The realist evaluation cycle of developing, testing and refining theory is applied to all programmes and is iterative not linear (Shearn, Allmark, Piercy, *et al.* 2017).

Positive Deviance (PD) was used in programme 2 and argues that in every community with a problem, someone with the same constraints as others has overcome that problem (Pascale, Sternin & Sternin 2013). PD proposes the task is to find them, find out what they do differently and then share this with the rest of the community using a Define, Determine, Discover, Design process.

Action Research underpins all programmes and the author is actively involved in the communities chosen. Action research methods ‘respond to practical and often pressing issues in the lives of people in organisations and communities’ (Reason & Bradbury 2006 p.xxii). Work meets the four criteria for action research in that it is practical in nature, focuses on change, is a cyclical process and is concerned with participation (Costello 2003).

Analytic Induction including truth tables and other tools is used when working with small numbers of cases (Miles & Huberman 1994). The initial Low Carbon Champions programme used Qualitative Comparative Analysis (QCA) as a way to test hypotheses by treating communities as sets to help identify necessary and sufficient causes and explains successful and unsuccessful outcomes (Ragin 1989).

Case-based methods include purposeful sampling to find successful and unsuccessful cases (Yin 2003). Cases complete a structured questionnaire with responses analysed and coded for conditions. Realist interviews are used to test theory (Pawson 2013).

Balanced Scorecards can better meet the needs small organisations when inverted into a Capacity, Operation, Marketing and Finance (COMFi) configuration (Parker 2009). This provided a useful template for organisational analysis in earlier work but less so in recent individual level work .

Gamification is used to develop and test behavioural theory at individual level. Gamification ideas from Octalysis (Chou 2019) are being embedded throughout the programme.

PROGRAMME DELIVERY

Theory has been iteratively developed, tested and refined since 2010. Adopting a vision of becoming Carbon Net Zero by 2030 provides focus, and means the series of programmes creates a twenty year action research project (Table 1).

Start	End	Programme	Community	Cases
2010	2013	Low Carbon Champions	Small Business	85
2013	2015	Low Carbon Deviants	Small Business	8
2021	2022	Carbon Centurions	Amateur Cricket	15
2022	2024	Carbon Champions	Amateur Cricket	80
			Amateur Rugby	14
			Small Business	8
2024	2030	TBA	TBA	TBA

Table 1 Programme Delivery

Low Carbon Champions (2010-12)

Low Carbon Champions (LCC) was a two year programme initiated by Suffolk County Council and delivered by Green Light Trust. It helped 85 Suffolk small and medium enterprises (SMEs) measure and reduce their carbon emissions.

LCC recognised that most SMEs do not have the people, skills, funding or motivation to measure and reduce carbon emissions. The programme addressed this by recruiting, training and supporting 'low carbon champions' within each SME. Champions would then encourage other small business to do likewise. Drivers and barriers to programme adoption were explored but mainly at organisation level (Table 2).

I/E	Level	Drivers	Barriers
I N T E R N A L	Individual	+ Do the right thing + Go green + Gen Y / Z + Spot opportunities	- Lack of time - Looking foolish - No motivation - No influence
	Organisation	+ Inc sales, cut costs, inc profit + Improve image / offers + Improve quality / service + Improve CSR / culture / change	- Lack of time - Lack of money - Lack of people - Lack of motivation - Lack of knowledge
E X T E R N A L	Community	+ Customer pressure + Competitor pressure + Supplier pressure + Community pressure	- No customer pressure - No competitor pressure - No supplier pressure - No community pressure - Unsupportive landlord
	Society	+ Reduce carbon + Reduce waste + Reduce water use	? Legislation ? Guidelines ? Fines

Table 2 Multi-level Drivers & Barriers (Source Parker 2013)

Interventions were holistic and professionally delivered. They provided champion training and mentoring, company carbon audits, Carbon Charter recognition and grants to reduce emissions. Progress was measured not only in carbon reductions but in business distance travelled which was innovative.

Different types of case were identified based on commercial and environmental orientation. A Wizard of Oz metaphor (Figure 1) mapped these to Tin Men, Cowardly Lions and Scarecrows seeking to reach a conveniently green Emerald City (Parker 2013).

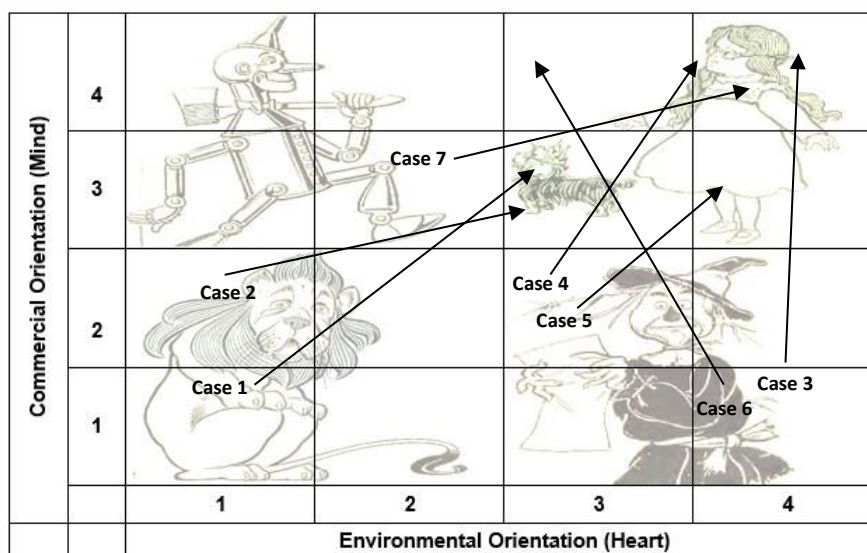


Figure 1 Commercial and Environmental Distance Travelled (Source Parker 2013)

Although the project was considered successful (Melville 2013), the impact on the wider Suffolk SME population was limited. Delivery was unsustainable once funding and support ended. Many participants were 'low hanging fruit' who already had an environmental orientation. An inflexible delivery method struggled in a diverse SME sector. Use of technology was weak which made the programme impossible to scale up (Parker 2013, op cit).

Refinements proposed that SME diversity needed programme diversity with different approaches for different business types. Engaging with a large community with limited funding needed a more grounded, generative approach. Embracing technology called for online community support, dedicated carbon calculators and blended learning.

Low Carbon Deviants (2013-15)

When LCC ended in 2012, existing champions needed support and new champions needed to be recruited. Both needs were addressed through a new programme called Low Carbon Deviants (LCD). This was to differentiate it from the previous scheme and to reflect ideas from positive deviance.

LCD provided a similar holistic solution as LCC but with fewer resources. Interns were recruited from local universities and created an online community using WordPress. Simple environmental management system documents were created and shared. World Land Trust provided offsetting as part of its Carbon Balancing programme (World Land Trust n.d.).

Earlier Context - Mechanism - Outcome (CMO) combinations were expanded with the introduction of Actions to produce ACMOs. These were translated into truth tables then tested using QCA (Figure 2). No significant ACMO combinations were found to be necessary or sufficient to explain successful and unsuccessful outcomes.

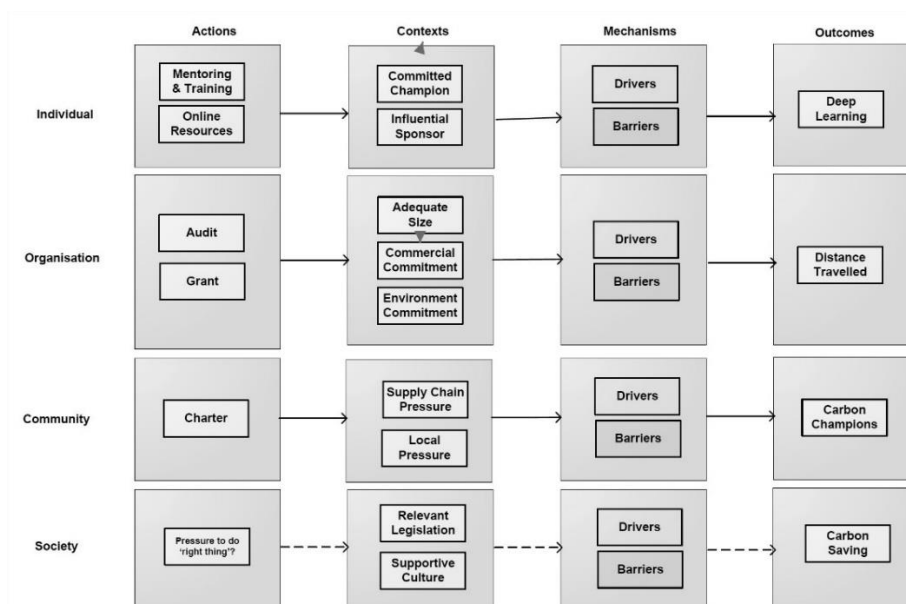


Figure 2 Top Level ACMO Configurations (Source Parker 2013)

A new cohort of eight organisations was recruited. Support for earlier LCC companies faded as their champions moved on or lost interest. The LCC programme ended in 2015 when Groundworks East took on support of the companies which remained as part of a revamped Carbon Charter agreement.

Carbon Centurions (2021-22)

Participation in carbon reduction initiatives restarted in 2021, when the question of 'if one club can measure, offset and reduce its carbon emissions for over a decade, then why can't others?' prompted the launch of Carbon Centurions. This was also driven by cricket becoming the sport most threatened by climate change (Goldblatt 2020).

Carbon Centurions invited 100 clubs in 100 days to commit to a 'Less is MOR' model to measure, offset and reduce their carbon emissions. This encouraged continuous reduction, with measurement and offset taking two hours at the end of each season. Training videos, spreadsheet resources and champion support were provided.

A 'digital native' intern was recruited to promote the programme via social media using a 20:30 not 2030 tag line (i.e. you'll be finished by half past eight). The aim was to create a community of shared sporting interests, rather than previous diverse business ones.

Despite extensive publicity only fifteen clubs were recruited for a launch game in July 2021. Of these, only three clubs went on to measure and offset emissions. Only one club continues to do this. There was little engagement or behaviour change. The programme was unsuccessful, but provided useful insights for the next iteration.

It was clear that neither clubs nor individual were intrinsically motivated to take action. Retrospective measuring using spreadsheets at end of season presented little opportunity for reduction. The online community needed curating to be effective. Offsetting was a complicated three-way agreement between clubs, the programme manager and World Land Trust.

Carbon Champions (2022-30)

The fourth programme is planned to run for eight years until 2030. After eighteen months of preparation a pilot phase was launched in early 2023 in local sporting and small business communities. Carbon Champions learns from previous programmes to address the fundamental issue of small organisations having no time, no money and no motivation to address climate change

A new curated online community provides learning and other resources specific to all champions (Carbon Community n.d.). Community-specific 3D carbon calculators provide carbon plans for every member of that community. Emissions measurement is in three dimensions: width (scope), length (duration) and height (levels) (Cricket Calculator n.d.).

Community member goals and vision are aggregated upwards to community level, and made SMART by aiming for Carbon Net Zero by 2030. Positive deviance methods are embedded by encouraging people to 'act their way into new ways of thinking'.

Champions gain authentic learning i.e. by doing, and can progress to existing or new qualifications as a path to certifiable 'green jobs'. Access to the Carbon Champions project is free of charge and run by volunteers. Results are reviewed by peers, not audited by consultants.

Carbon Champions makes fighting climate change fun using ideas from gamification. Benefits for champions and clubs taking part are stressed, especially image and youth recruitment. Offsetting is inexpensive and help is provided to find sponsorship. Help is provided to push (not pull) funding for reduction projects. .

Online communities, calculators and platforms have been created to enable collaboration at collective and community levels. Testing includes revisiting the original LCC and LCD project managers and case studies. Interviews are scheduled with all cases – both successful and unsuccessful.

Carbon Champions is used to test and refine hypothetical CIMO configurations. Community-specific promotion aims to find existing exemplars / positive deviants. QCA will be used again to suggest causal combinations that explain successful and unsuccessful cases.

CURRENT ACTIVITY

Earlier programme ACMO configurations have been updated and reconfigured to create CIMO configurations (Punton, Vogel & Lloyd 2016). Testing is iterative with interventions changing existing and creating new contexts. Theory of change suggests that involvement throughout all levels is ultimately required (Punton, Vogel & Lloyd, op cit).

Table 3 shows a typical CIMO hypothesis that is being tested. Further iterations of developing, testing and refining are inevitable, especially linking 'up and down rungs'

from individuals to clubs and collectives. CIMO combinations use mapped in Excel to mimic complex interactions.

Context	Intervention	Mechanism	Outcome
Amateur sports clubs don't have the people, time, money or motivation to fight climate change	... so we ... create 3D carbon reduction plans for every club in their community whether they want one or not	... so they ... experience a tipping point where they are no longer judged by what they do, but what they DON'T do	... so that ... club officers and club members are motivated to take action

Table 3 Hypothesised 'Tipping Point' CIMO Configuration

Programme Types are the existing four interventions: (1) Low Carbon Champions, (2) Low Carbon Deviants, (3) Carbon Centurions and (4) Carbon Champions. Context Types are split in two: Barriers (-) that inhibit successful outcomes and Drivers (+) that support successful outcomes.

Intervention Types reflect earlier work with balanced scorecards which provide a useful template: Capacity (learning and growth), Operations (internal processes), Marketing (external appearance) and Finance (funding).

Mechanism Types borrow from the eight core drives of gamification: Meaning, Accomplishment, Empowerment, Ownership, Influence, Scarcity, Unpredictability and Loss. Outcome Types are Successful, Unsuccessful or Anticipated.

CONTEXT

Community Level

The 'no time, people nor money' barrier extends to community level meaning national bodies are currently unable or unwilling to seriously engage with this or any other environmental programme. Whilst communities of like minded people remains a valid way to fight climate change, action must be from the ground up.

Collective Level

Most sporting collectives are limited to a few volunteers running a competition or county. Some counties have additional resources from national bodies depending on their importance. County level remains important for cricket but less so in rugby where national and local leagues are more important. Suffolk is a minor county in both sports and manageable to work with 80 cricket clubs and 18 rugby clubs. Setting a collective at county level has local potential due to Suffolk's Greenest County ambitions.

Interventions in collectives takes a number of forms. In sport, all clubs in a sponsored league or county have had 3D carbon reduction plans charting their path to Carbon Net Zero created free of any cost or commitment. The proposed *Tipping Point* mechanism works at collective level whether they like it or not.

Organisation Level

Previous interventions at club level failed to achieve desired outcomes. Typically a single individual with authority has taken action, usually through financial initiatives that use funding as driver. Promotion of actions via standards or certificates is not effective if not community specific. Work required is not difficult, but there is minimal motivation when so many other urgent and important jobs need doing.

Club level engagement in Carbon Champions remains optional with actions driven by individual carbon champions. Clubs get a carbon reduction plan whether they want one or not. Orphaned clubs that do not have carbon champions use an *Adoption Process* mechanism to recruit them.

Individual Level

Individual behaviour change is the programme's primary focus and hardest challenge. Relying on a single positive deviant carbon champion to make limited change in one organisation struggles to achieve community-level action when that community has yet to recognise it has a shared problem.

Successful cases suggest a single individual is responsible for initiating action, with positive deviant actions emerging as organisational impact. Without persistent and significant reduction, organisations (and their individual actors) are simply 'paying to pollute'. Changing this is essential if members in all clubs are to become engaged.

The fundamental change in the fourth programme is to focus on Individual behaviour. Like clubs, champions can be 'orphaned' and require an *Adoption Process* mechanism to trigger club engagement and action.

INTERVENTIONS

Capacity Perspective

Previous programmes have failed to build the capacity needed to maintain momentum. Capacity means programme investment, and in this context means recruiting, rewarding and retaining adequate numbers of skilled, motivated carbon champions.

Authentic learning is built into the Carbon Champions programme and uses Laurillard's learning framework to underpin mission progress (Parker 2010). Online resources are deliberately minimal to encourage champions to contribute their own through intrinsic motivation. Progress is recognised through both defined and unpredicted rewards.

Marketing Perspective

Originally pitched at organisational level, promotion is now focused at individual level and asks 'what do we have to do to motivate carbon champions?' This starts with adopting the Fun – Skills – Winning approach essential to recruit younger people.

Becoming a Carbon Champion requires completing nine Missions. These reflect the three gamification phases – Onboarding, Scaffolding and Endgame (Table 4). The first phase – Awareness – is the responsibility of community admins.

Phase	No	Mission
Onboarding	1	Join
	2	Configure
	3	Calculate
Scaffolding	4	Measure
	5	Offset
	6	Reduce
Endgame	7	Build
	8	Widen
	9	Celebrate

Table 4 Game Phases mapped to Champion Missions

Programme promotion is no longer directed at clubs or higher levels, and it is now the responsibility of carbon champions to engage with their clubs. Limiting one Club Admin role per club creates scarcity. Champion actions are rewarded with points, badges and a leader board. They must continue to take action regularly or be penalised or removed.

Operations Perspective

This perspective asks what internal processes champions need to excel at. Measuring (and managing) carbon emissions is essential and a community-focused, carbon calculator provides this, and is scalable in three dimensions (Table 5).

Height reflects the ability to aggregate impacts at club, collective and community levels. *Width* reflects the scope of emissions and includes community-specific items such as kit, or more generic sources such as web sites. *Length* reflects the duration of programme e.g. 2030 or sooner.

Our Vision ?										
Source	2021 Estimated	2022 Estimated	2023 Target	2024 Target	2025 Target	2026 Target	2027 Target	2028 Target	2029 Target	2030 Target
Energy	1,042,792	1,041,499	781,121	609,275	475,234	370,683	289,132	225,523	175,908	137,208
Food	264,990	259,767	152,157	118,683	92,573	72,207	56,321	43,930	34,266	26,727
Transport	538,611	454,786	656,405	511,996	399,357	311,498	242,969	189,516	147,822	115,301
Emissions	1,846,393	1,756,052	1,589,684	1,239,953	967,164	754,388	588,422	458,969	357,996	279,237

Table 5 3D Carbon Calculator aggregated at community level. Numbers are kg co2e

Underlying data is ‘scraped’ from fixture web sites at collective level. Templates from similar clubs are used to provide emissions estimates. As the programme expands this will provide ‘Big Data’ to increase accuracy of emission estimates.

An online community provides support to carbon champions. This platform is generic unlike the carbon calculators which are necessarily specific to their unique communities.

All software assets are open source. Allowing code to ‘fork’ and underpin similar applications is welcome and available to the open source community.

Finance Perspective

Champions are encouraged to fund their own club offset and reduction programmes. This helps build local engagement with offsetting / rewilding investments. This approach works at multiple levels and seeking funding from competition or county sponsors or national bodies is encouraged.

Participation in Carbon Champions is free of charge. The programme is currently funded as a project but is shortly being set up as its own Community Interest Company (CIC).

MECHANISMS

Implicit gamification is an increasingly popular way to embed behaviour change in everyday events (Chou 2019). Explicit gamification is relevant to sporting communities.

Game Phases

Delivering Carbon Champions as a game requires engagement in four phases (Chou, op cit). Awareness is first initiated by community admins and then developed and expanded by carbon champions themselves. Onboarding includes joining the programme and configuring the club calculator. Scaffolding covers the core measure – offset – reduce missions. Celebrating covers building the programme, widening the scope and celebrating success.

Core Drives

Basing mechanisms on eight Core Drives ensures a structured approach and divides drives into both Left Brain / Right Brain and White Hat / Black Hat activities. Many have not been tried or tested in earlier programmes - especially the Black Hat dimension - which might explain a lack of motivation and programme commitment (Table 6).

No	Core Drive	Brain	Hat
1	Meaning & Calling		White
2	Development & Accomplishment	Left	White
3	Empowerment of Creativity & Feedback	Right	White
4	Ownership & Possession	Left	
5	Social Influence & Relatedness	Right	
6	Scarcity & Impatience	Left	Black
7	Unpredictability & Curiosity	Right	Black
8	Loss & Avoidance		Black

Table 6 Gamification Core Drives (Source Chou 2019)

Programme Analysis

Octalysis provides a useful framework to analyse whether a programme will prove balanced and therefore effective. A top level analysis shown in Figure 3 illustrates this. Scoring of previous programmes suggests a bias towards Left Brain, White Hat interventions leading to short-lived, extrinsic motivation. Interventions to correct this in Carbon Champions are proposed in the text boxes.

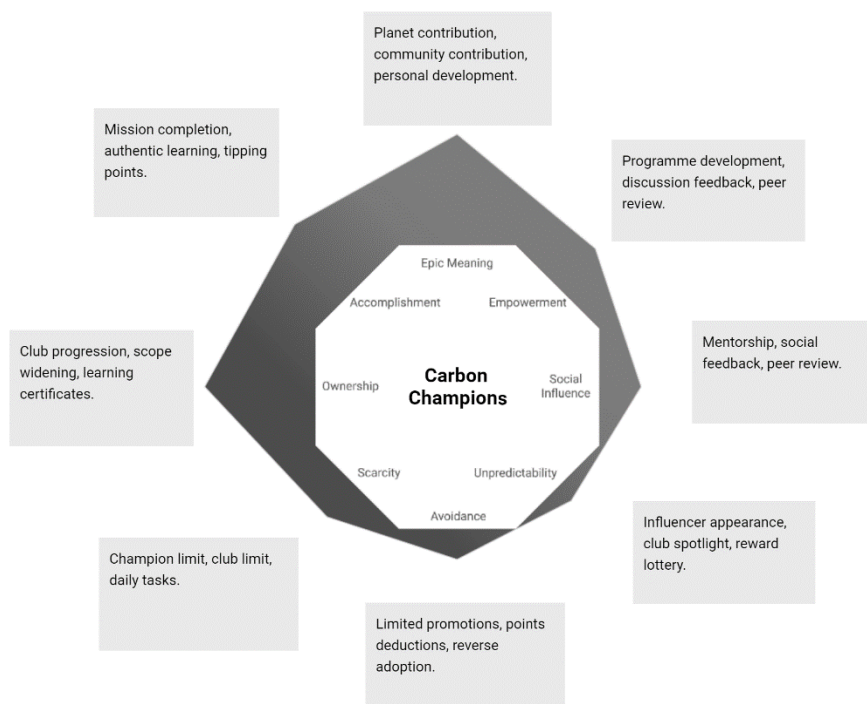


Figure 3 Carbon Champion Core Drive Analysis (Source Octalysis Tool Box)

OUTCOMES

Our primary vision is to make our chosen communities Carbon Net Zero by 2030. The Carbon Champions programme is designed to be flexible and can be applied to other communities - sporting or otherwise - if required. All this requires is for someone to act in a (carefully specified) community admin role.

Creating significant numbers of young, skilled, motivated and engaged carbon champions able and willing to tackle climate change in sport, work and elsewhere is another planned outcome. Evolving the Carbon Champions concept to a recognised, peer reviewed qualification leading to 'green jobs' is another ambition.

CONCLUSIONS

The statue of Emeline Pankhurst, founder of the UK's Women's Liberation movement urges 'Deeds Not Words'. It is hoped our deeds might make a small contribution to the fight against climate change. It is hoped these words might make a small contribution to the literature.

REFERENCES

- Bhaskar, R. (1978) *A Realist Theory of Science*. Hassocks, Harvester Press.
- Carbon Community (n.d.) Carbon Community. [Online]. Available at: www.carbonchampions.com (Accessed: 23 May 2023a).
- Cricket Calculator (n.d.) Cricket Calculator. [Online]. Available at: <https://cricket.carbonchampions.com> (Accessed: 23 May 2023b).
- Carmichael, A. (2022) Time for practice; sport and the environment. *Managing Sport and Leisure*. [Online] 27 (3), 189–198. Available at: doi:10.1080/23750472.2020.1757493.
- Chou, Y.-K. (2019) *Actionable Gamification*. Milpitas, Octalysis Media.
- Costello, P.J.M. (2003) *Action Research*. Bloomsbury Publishing.
- Goldblatt, D. (2020) Playing against the clock: Global sport, the climate emergency and the case for rapid change
- Harvey, F. (2023) Scientists deliver ‘final warning’ on climate crisis: act now or it’s too late. *The Guardian*. 20 March.
- Melville, R. (2013) *Low Carbon Champions Evaluation Project*
- Miles, M.B. and Huberman, M.A. (1994) *Qualitative Data Analysis. As Extended Sourcebook*. London, Sage.
- Parker, R. (2010) If You Can’t Join Them, Beat Them! *Industry & Higher Education*. Special ed (February), 1–12.
- Parker, R. (2013) Suffolk Low Carbon Champions: An alternative review
- Parker, R. (2009) You don’t have to be big, to be balanced. Using balanced scorecards to drive SME business strategy. In: *ISBE Conference Proceedings*. 2009 Liverpool. pp. 1–14.
- Pascale, R., Sternin, J. and Sternin, M. (2013) *The Power of Positive Deviance* [Online]. Available at: <http://www.positivedeviance.org/>.
- Pawson, R. (2013) *The Science of Evaluation : A Realist Manifesto*. London, Sage.
- Pawson, R. and Tilley, N. (1997) *Realsitic Evaluation*. London, Sage.
- Punton, M., Vogel, I. and Lloyd, R. (2016) Reflections from a Realist Evaluation in *Progress: Scaling Ladders and Stitching Theory*
- Ragin, C.C. (1989) *The Comparative Method*. Berkeley, University of California Press.
- Reason, P. and Bradbury, H. (2006) *Handbook of Action Research*. London, Sage.
- Sayer, A. (2003) *Method in Social Science*. London, Routledge.
- Shearn, K., Allmark, P., Piercy, H. and Hirst, J. (2017) Building Realist Program Theory for Large Complex and Messy Interventions. *International Journal of Qualitative Methods*. [Online] 16 (1), 1609406917741796. Available at: doi:10.1177/1609406917741796.
- Wilby, R.L., Orr, M., Depledge, D., Giulianotti, R., et al. (2023) The impacts of sport emissions on climate: Measurement, mitigation, and making a difference. *Annals of the New York Academy of Sciences*. [Online] 1519 (1), 20–33. Available at: doi:<https://doi.org/10.1111/nyas.14925>.
- World Land Trust (n.d.) *Carbon Balancing*.
- Yin, R.K. (2003) *Case Study Research*. London, Sage.