

Perspectives on educational trials: Insights from my research in education and healthcare settings – an invitation for dialogue

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Key advisory roles

National

- Government Skills College of Experts
- Cabinet Office Research, Evidence and Impact panel
- Cross-Whitehall Trials Advice Panel
- What Works Centre for Children's Social Care

Regional

- DfE Fenland & East Cambs Priority Area Partnership Board
- CUH Digital Health Strategy Group


International

- World Bank Teacher Professional Development programme
- Punjab Institute of Medical Sciences

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A tale of two wards

“...it was the spring of hope, it was the winter of despair
Charles Dickens, A tale of two cities”

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The Puzzle

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What does this mean for educational trials?

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Key challenges in educational trials

- Recruitment and retention
- Implementation (fidelity)
- Conceptualising and operationalising outcomes

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‘Outcomes’ in educational trials

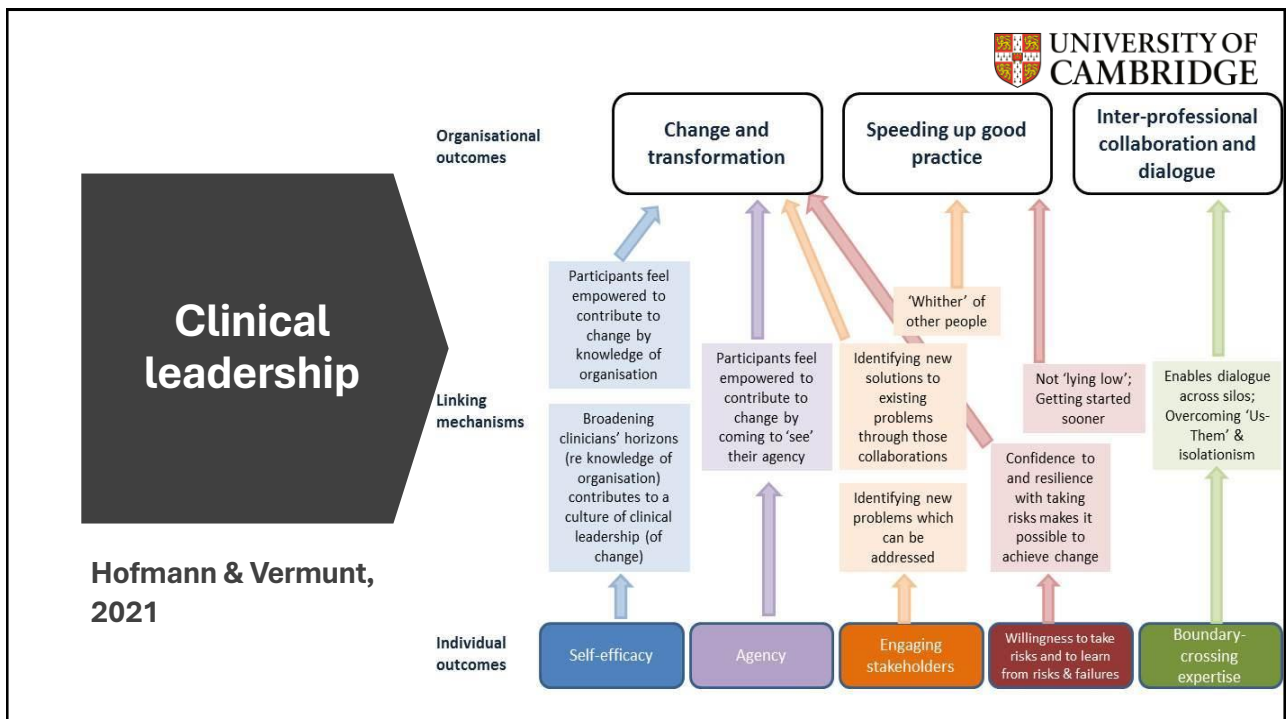
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Reliably measurable outcomes of educational interventions are often trivial while the outcomes stakeholders want are impossible to even conceptualise let alone operationalise

- ‘Straightforward’ outcomes? (REMAP-CAP trial)
- ‘Complex’ outcomes? (DfCMS; DPW; DoHSC examples)
- **EXAMPLE: Clinical Leadership professional development intervention ‘outcomes’?** (Hofmann & Vermunt, 2021; Hofmann et al., 2024)
 - What ‘causes’ the outcome? (cf. Martin et al., 2021)
 - Relationship between ‘intervention’ and ‘outcome’ (cf. meta-analysis by Avolio et al., 2009)
 - Distance? Conceptualisation? Operationalisation? Face validity?

Theory needed to understand what could constitute an ‘outcome’

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Relevant educational outcomes often take too long to achieve to know the intervention caused them

- Additional outcomes needed to know trial is ‘doing no harm’? (e.g., Hofmann, 2025 [dialogic teaching & risk]; Ryan et al., 2022 [physical activity interventions in schools])
- Aggregate effects of single and multiple interventions? (cf. Ruthven et al., 2017)
- Outcomes at different temporal and institutional distances? (Hofmann & Ilie, 2022)

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Educational outcomes are always staged, not directly achieved – and necessitate the question of whether/when process outcomes should be considered as the ultimate outcomes

- “What single practice do you think you will abandon going forward after the pandemic?” (Hollenberg et al., 2022)
 - Excessive, unnecessary, or routine testing;
 - Rapid adoption of anecdotal evidence; Prioritising doing something over learning what to do;
 - Tribalism and siloed critical care among separate ICUs in the same institution

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 - Excessive, unnecessary, or routine testing [*de-implementation*];
 - Rapid adoption of anecdotal evidence; Prioritising doing something over learning what to do; [*slowing down decision-making, avoiding ‘quick fixes’*]
 - Tribalism and siloed critical care among separate ICUs in the same institution [*collaboration and dialogue across professional boundaries*]

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Implementation requires (professional) learning so is it therefore also an ‘outcome’?

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Some of the most important educational outcomes are unknown, yet we need to know in advance how to achieve them



Complex skills ¹



Appropriated ('learned') skills but not utilised in practice ²



Unknown learning objectives ³

¹ Woodward, Martin, Gupta & Hofmann, 2024

² Hofmann et al., 2025

³ Hofmann & Vermunt, 2021; Hofmann et al., 2021; Hofmann & Arenge, in press

Educational outcomes are co-constructed and hence need to be acceptable to practitioners

Vicious cycles that stop practitioners from implementing new practices in the clinical workplace after training

Participation

LPP not accepted → Skill to participate centrally not developing

Communication

Expert thinking tools not articulated → Trainees do not learn to use them or talk about them

Norms

New norms needed → Departing from existing norms disruptive → Difficult to develop new ones

(Hofmann, Janik Blaskova & Jones, 2025)

Educational outcomes need to be capable of sticking without excessive energy-cost to be worthwhile

- Locally identified ‘problems of practice’ known to be central to whether practitioners will try new interventions (Edwards, 2010; Hofmann, 2024)
 - (How) Could/Should local goals be aggregated to cross-institutional ‘outcomes’?
- **Sustainability 1:** Should desired practice outcomes be coupled with outcomes regarding what makes new practices ‘**stick**’? (Hofmann et al., 2025)
- **Sustainability 2:** Should desired outcomes be coupled with measures on the ‘**energy**’ consumed to implement new practices? (Hofmann, 2025; cf. Kennedy, 2019 on bootstrapping)

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**Multi-arm educational trials as one strategy (cf., Chernikova et al., 2020)
– but challenge of recruitment and retention**

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Recruitment and retention

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Recruitment into educational trials can get blurred with the intervention

- EXAMPLE 1: Cohesive Communities trial: a No.10-initiated randomised controlled trial (RCT) of a *Community-Based English Language* (CBEL) intervention by the MHCLG (2018)
 - Cluster randomisation: **What is the trial an evaluation of?**

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 - Cluster randomisation: **What is the trial an evaluation of?** [Clusters up to 7 participants – does that change your view?]

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Recruitment into educational trials can get blurred with the intervention

- EXAMPLE 2: *epiSTEMe* trial (Ruthven et al., 2017)
 - Extended recruitment; two teacher-principle had to be abandoned:
What does that mean for the trial? Are the schools comparable?

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Some groups are virtually absent from all studies with trial design as they cannot be recruited, potentially exacerbating inequalities

- **EXAMPLE 3: FEC-OA evaluation** (Hofmann & Ilie, 2022)
 - Schools serving student populations experiencing socioeconomic disadvantage underrepresented in educational impact evaluations (cf., Archer, 2021).
 - Our theory-led evaluation used school-generated impact evaluation data from schools with well above-average levels of disadvantaged pupils.
 - How far can/should be relax requirements of data quality and design rigour to include all schools? If ‘What works’ research only finds out what works in schools that already do quite well, might our research exacerbate inequalities in educational outcomes?

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Retention/Attrition invites tricky questions about whether it is the study or the intervention that does not ‘work’

- **EXAMPLE 4: *epiSTEMe* randomised field trial** (Ruthven et al., 2017)
 - **Data returns example:** Is it ‘retention’? Should we be collecting the data? What does it mean for our findings if we do/don’t – not just in terms of power. Are the schools who return it themselves the ‘same’ as those who don’t?
 - **Teachers moving out of classes/schools example:** Is this about retention or about implementation? This will be an integral part of the context in which any future intervention will inevitably have to be implemented so if it can’t be made to ‘work’, does it ‘work’?

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Retention/Attrition invites tricky questions about whether it is the study or the intervention that does not ‘work’

- **EXAMPLE 5: Holoscenarios pilot RCT** (Hofmann & Woodward, 2025; Woodward, forthcoming)
 - **Re-scheduled/Cancelled sessions example:** Is this retention/drop-out? But it had nothing to do with the participants themselves? Is it implementation? This will be an integral part of the context in which any future intervention will inevitably have to be implemented so if it can't be made to 'work', does it 'work'?
 - **Participation location example:** Is this retention/drop-out? But it had nothing to do with the participants themselves? Is it implementation? This will be an integral part of the context in which any future intervention will inevitably have to be implemented so if it can't be made to 'work', does it 'work'?

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Implementation

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Implementation of educational interventions in education trials often not well documented, analysed and reported

- (Maxwell et al., 2021; Demack et al., 2021; Ryan et al., 2022; 2023)
- But even when they are:

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Interventions and implementation plans often lack understanding about educational practice and practitioners' decision-making in it

- (Kennedy, 2019)
- Group work interventions example (Hofmann & Mercer, 2016)
- Should the intervention's **distance from, and articulation of its link to, teachers' local goals** be part of the 'intervention' and its rationale and description?

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...and they often lack understanding about the nature of change, and barriers to change, in educational practice – focusing on the activities, instead of the mechanisms, assumed to bring about change

- Weaknesses of common assumptions ('myths') about teacher professional learning and change (Hofmann, 2019), like 'collaboration' (Hofmann, 2024; Hofmann et al, forthcoming)
- Means that TPL interventions may reinforce status quo instead of changing it (Rainio & Hofmann, 2021)
- Ignoring mechanisms by which interventions achieve their outcomes (cf. Kennedy, 2019) misses opportunities and can mislead

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Implementation fidelity evaluations need to understand nature and patterns of change

- Superficial change can mask the absence of genuine practice transformation (Hofmann & Ruthven, 2018)
- Patterns of change are not linear: By how much and for how long do we expect things to stay the same and/or get worse before they get better? How do we balance required timelines vs growing confounds? [epiSTEMe dual outcomes example]
- Without such understandings, how helpful are implementation fidelity evaluations?

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...and systems and perceptions of accountability in the educational practice

- Interventions do not always take into account what practitioners and leaders are, and perceive themselves to be, **accountable** for – **risks** of effective implementation often ignored (Hofmann, 2024; 2020)
 - This needs to consider both systemic, normative and ethical dimensions [policy system; parents; media; students]
 - And it needs to consider the temporal dimension of those risks (Hofmann et al., 2025)

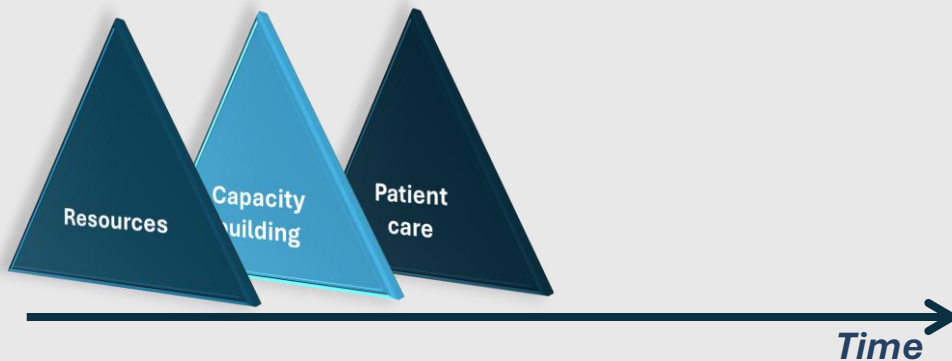
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Temporal risk trajectories



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Temporal risk trajectories



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Summarising possible considerations

- Multiple, theory-informed, stakeholder tested outcomes (incl proximal, proxies, harm and process - practice/culture change)
- Theory-informed prior research/stakeholder analyses to check whether compromises (to recruitment, retention, implementation) required by real-world conditions (incl accountability systems) warrant a trial methodology **and** whether outcomes, if achieved, would be *sustainable*
- Identification, and analysis of impact of, systematically absent groups
- Multiple measurement points to account for temporal change patterns
- Use of theory and research to ensure intervention, and implementation, build on sound theoretical understandings of the mechanisms of change in the given setting (and not activities aiming to achieve change), **and** that fidelity/process analyses also investigate those

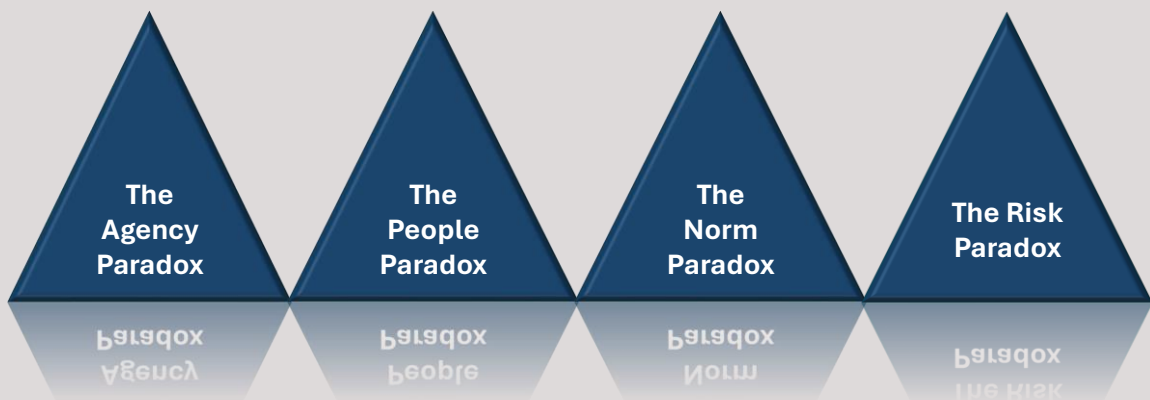
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So....
How *does* professional practice change when educational practitioners are attempting to use research to improve outcomes?

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Barriers to professional change after PLIs

(Hofmann, 2024)



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A model for overcoming these implementation challenges (Hofmann, 2024)

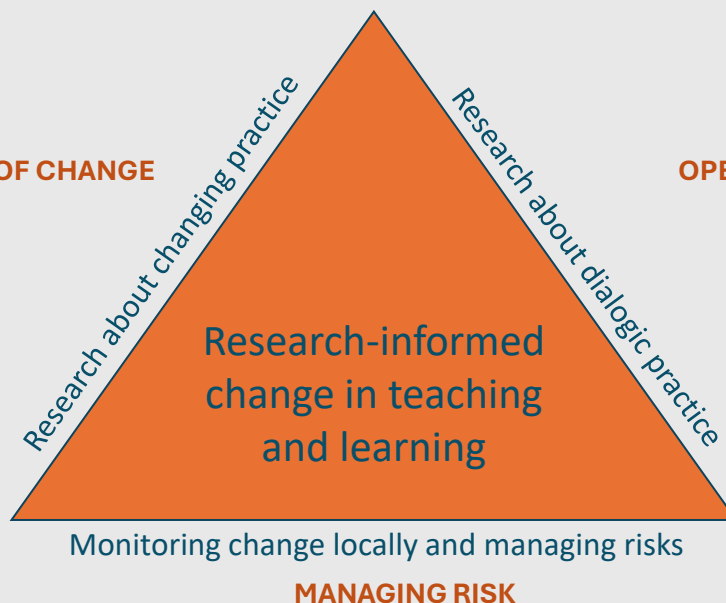
1. Visibly linking new practices to **teachers' local** perceived problems of practice
2. Developing research-based tools to support implementation (including changing practice **norms** and facilitating productive peer **collaboration** and dialogue)
3. Developing research-based tools to **mitigate innovation risks**, such as monitoring and self-evaluation tools, based on research but translated to practice contexts

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A model for overcoming these implementation challenges (Hofmann, 2024)

MECHANISMS OF CHANGE

OPERATIONALISATION



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