SAMPLE - Implementing Learning Transfer Evaluation: Initial scoping and recommendations

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1 - Background and theoretical context

1.1 - The desire and requirement to learn

Effective Learning and Development (L&D) is a core component to any contemporary organisation that wishes to meet its strategic outcomes. In an NHSBT context, this is recognised from a top-down perspective within the goals of the current strategy – to "invest in people and culture to ensure a high performing, inclusive organisation" (NHSBT, 2022, p.7). It is also recognised from a bottom-up perspective within the most recent 'Our Voice' survey, where professional development or 'growth' was indicated by staff as a priority development area (Link, 2022). Even outside of these organisation-specific desires, there is the general principle of learning as a human trait: as a social species, we overtly, covertly, and continuously learn about each other, the world around us, and the knowledge and skills required to take roles within our societal contexts (Camilleri, 2012). A context wherein highly specific roles are required for success – such as NHSBT's hundreds of roles across the spectrum of directorates – therefore needs to have access to learning opportunities, not least to meet organisational needs such as ensuring compliance and permitting a talent pipeline, but also to satisfy our developmental urges.

1.2 - Assumptions of the 'learning cycle' and impact on the workplace

Stages of education – particularly those within mandatory education through to university programmes of study – use a similar learning cycle:

a. knowledge is transmitted through various means,
b. assessments of knowledge or skill (recall, application, etc.) occur at discrete points in time, and
c. the assessment is scored, resulting in an award or progression to the next 'stage' of learning or the requirement to be reassessed.

While not without significant critique, this cycle is engrained into educational contexts, thereby forming a lived experience for many: we learn, we are assessed, we achieve, and we repeat. This cycle occurs multiple times across a sizeable proportion of our lives.

When moving beyond these educational domains and into workplace learning and training, it is reasonable to suggest that (sub-)conscious assumptions persist and that instances of L&D 'end' at the point of passing an assessment. This assumption may be held by learners, by those designing and delivering training, and by those endorsing the training. However, this assumption does not include the appropriate end point of learning. In short: successful completion of the assessment is followed by the application of the learning, or more specifically, *how the learning is applied to workplace contexts and how this changes behaviours and/or skills in a desired way.* This final stage can be called Learning Transfer. While this observation is not ground-breaking, consensus suggests that it remains an under-appreciated aspect of L&D, both on a wider scale (Arabi, 2020) and more locally in NHSBT.

1.3 - Learning without Transfer

Finding evidence of Learning Transfer can help in confirming that L&D is effective for learners and, by extension, for the organisation. Without understanding Learning Transfer, only half of the story is being told.

For example, the completion rate for a one-day Fire Safety programme can indicate who has engaged with the learning content sufficiently so that they can pass an assessment (which may problematically lead to conflations with 'compliance' or 'competence'). However, this does not *reliably* inform us if this training has had a positive effect on the learners' behaviours and skills in the workplace. If the time came to fight a small-scale electrical fire, could the learner:

a. confidently find the location of the fire extinguishers?
b. select an appropriate extinguisher (while discounting those that would aggravate the danger)?
c. use the extinguisher in a safely and effectively?

While hypothetical, if the only way of measuring the above scenario was through an end-of-day summative assessment, this would not provide the desired outcomes when dealing with associated situations. In other words: without due regard for Learning Transfer, the benefits of learning in alignment with an organisation's goals or requirements are not totally assured.[1]

Thalheimer (2018) presents a range of measurements that are used in L&D/business contexts that cannot identify if Learning Transfer has occurred, neither in isolation nor combination. Table 1 expands on Thalheimer's observations:

Completing one or more learning sessions	Paying attention during learning
Showing interest in learning	Active participation in learning activities
Enjoying learning experiences	Self-reporting that learning has occurred
Reciting facts or terminology	Comprehending concepts
Demonstrating competency during learning	Making relevant decisions
Obtaining consistently high assessment scores	Recording many hours of learning activity
Promoting a learning activity to others	Providing positive feedback on learning

Table 1 - Factors that do not provide evidence of successful learning transfer (adapted from Thalheimer, 2018).

Information can still be derived from these data: assessment scores can give an idea of learners needing further support; being able to recite and apply facts within a scenario can demonstrate a learner's in-class development; and gaining learner feedback can assist in Continuous Improvement (CI) and Quality Assurance (QA) processes. These factors therefore have a place and should be incorporated, but they fall short of providing robust, empirical support for Learning Transfer.

Despite contemporary recognitions of Learning Transfer, the reality of its implementation is different. Arabi (2020), for example, collates various sources to demonstrate that factors such as those in Table 1 are actively measured across most businesses, but the proportion of businesses actively measuring Learning Transfer plummets to fewer than 5%.

Many Learning Management Systems (LMSs) such as Brightspace (D2L, 2022) can report on learner metrics, and similar Learning Experience Platforms (LXPs; Valamis, 2022) use algorithmic calculations to assist in turning metrics into automated guidance for learners. Again, while useful for the learner and from administrative perspectives, both LMSs and LXPs measure aspects seen in Table 1. As such, they may help *towards* understanding Learning Transfer, but they are not sufficient to investigate or explain Learning Transfer on their own.

1.4 - Problem synthesis

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[1] This is not to say that those learning about Fire Safety should be exposed to hazardous situations to 'prove' competency. Appropriate methods of measuring Learning Transfer (e.g., simulation) are provided throughout this work.

2 - Modelling and contextualising Learning Transfer

2.1 - Thalheimer's Learning Transfer Evaluation Model (LTEM)

Various frameworks exist for measuring Learning Transfer and its adjacent concepts, such as the Success Case Method (Brinkerhoff, 2002) and Value of Learning / Return on Expectation measurements (Anderson, 2007; see Royal College of Nursing, 2021, for a more in-depth review of these and other frameworks). From anecdotal evidence, the Kirkpatrick model (Kirkpatrick, 1976) appears to be the main model, wherein four levels of measurement are identified: Reaction (interpretations of and satisfaction with the learning), Learning (amount of knowledge acquired), Impact (change in skills and behaviours) and Results (impact of any behavioural changes on the organisation). Though widely used, it has been six decades since its inception and has received few updates. While functioning as a solid basis from which other models have grown, there has been sufficient critique of the Kirkpatrick model to warrant caution in its continued use (e.g., Arabi, 2020; Moreau, 2017). This includes a long-standing misinterpretation of equating 'high levels of learner satisfaction' with 'successful learning transfer' (which, as suggested in Table 1, is flawed).[2]

Thalheimer (2018) both critiques and expands on the Kirkpatrick model, offering a more nuanced route to understanding Learning Transfer in the workplace, up to and including any subsequent effects of Learning Transfer. This is known as the Learning Transfer Evaluation Model (LTEM), containing eight Tiers. A simplification of this is presented in Table 2, including the broadly equivalent levels of the Kirkpatrick (1976) model for comparison:

Kirkpatrick	Tier	Domain	
Results	**8**	Effects of transfer	Causal impact to self, others, organisation, etc.
	7	Transfer	Assisted or independent application to workplace
Impact	**6**	Task competence	Adequate actions based on decisions *after* learning event
	5	Decision-making competence	Making adequate decisions *after* learning event
Learning	**4**	Knowledge	Learner comprehension/recitation of information
Reaction	**3**	Learner perceptions	Learner satisfaction
	2	Activity	Attention, interest, and participation
	1	Attendance	Presence in learning

Table 2 - Simplification of Thalheimer's (2018) Learning Transfer Evaluation Model (LTEM), aligned with the four levels of the Kirkpatrick model (1976).

Greater detail of the LTEM is available in Thalheimer (2018), but the following provides an overview of each Tier. This overview interprets the LTEM from bottom-up to provide an idea of how each Tier gradually builds towards Learning Transfer while increasing in measurement complexity.

For the lowest three Tiers (Attendance, Activity, and Learner perceptions), data are gathered during or immediately after the learning event. These data offer insight into learners' reactions on learning content, as well as learners' levels of presence, interest, and satisfaction. These are not *directly* attributable to Learning Transfer (e.g., 'high attendance' ≠ 'successful Learning Transfer'), but they are nonetheless foundational and provide essential information to those with a vested L&D interest. For instance, data from these Tiers can be used to inform the CI process, allowing for improvements to the educator's/trainer's approach, understanding which activities were viewed favourably, and so on.

Higher Tiers start to be accessed when assessment occurs, allowing an understanding of whether knowledge has been acquired. At Tier 4, these measurements involve assessing lower-order cognitive processes (e.g., 'remembering' and 'understanding' within Bloom's taxonomy; see Krathwohl, 2002). Evidence supporting this Tier can be obtained

[2] It is unlikely that the founders of this model had originally intended for this interpretation. However, inappropriate or incomplete applications of this model in modern contexts has resulted in this false equivalency. This may go towards explaining why measurements of learner satisfaction (e.g., learner satisfaction as core KPI, 'Happy Sheets,' and so on) continue to be used with little supporting evidence.

through typical formative and summative assessment strategies, usually occurring either during or soon after the learning event.

Tiers 5 and 6 expand on the complexity of assessment, as well as forming a crucial bridge between learning events and transfer into the workplace. These Tiers provide evidence of how a learner applies their knowledge to specific cases in 'controlled' contexts (i.e., using higher-order cognitive processes such as 'analysis' and 'evaluation;' see Krathwohl, 2002). In addition, the measurement of these Tiers may occur weeks or even months after Tier 4 assessments have concluded. This *diachronic perspective* (i.e., change that occurs over time) aids in understanding if and how information is retained and used over time.[3]

It can be difficult to distinguish activities and evidence for Tiers 5 and 6: at what point does Decision-making competence develop into Task competence? Thalheimer (2018) proposes a guide to assist with this: Situation, Evaluation, Decision and Action (SEDA). As visualised in Figure 2, understanding the distinctions between these steps – and implementing them into assessment and observation – can provide reasonable evidence to support how a learner's appraisal of a context can lead to appropriate decisions to be considered, *as well as* the implementation of the most suitable decision(s).

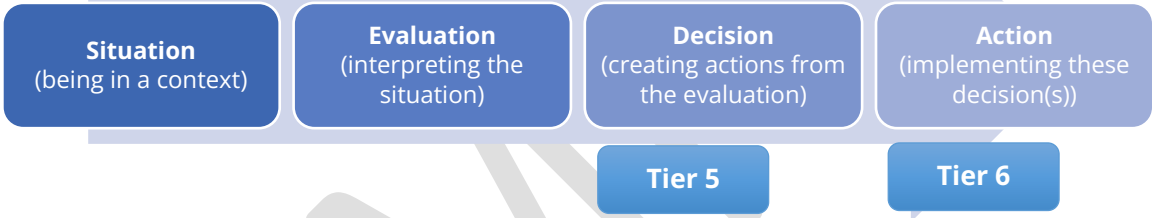

Figure 1 - A visualised SEDA guide (adapted from Thalheimer, 2018).

Tiers 7 and 8 focus on Transfer and the causal impact that this can have on broader factors (e.g., on other learners, colleagues, the organisation, the communities associated with the organisation, and so on). Broadly speaking, Tier 7 focuses on Learning Transfer relating to a handful of learning events in the shorter term (e.g., across months), whereas Tier 8 may instead measure a 'sum of Learning Transfer' over a much longer period (e.g., a longitudinal case study drawing on various courses, including datasets across the organisation and beyond). Note that Tier 7 measures assisted and independent applications of learning to the workplace, depending on the suitability for the context of use. Both are understood to be valid forms of Learning Transfer if the working context deems it sufficient.

These top two Tiers are the trickiest to measure due to factors that fall into two categories. First, it is difficult at this level to obtain data that can be reliably linked back to learning instances (e.g., ensuring that positive behavioural and skill changes are influenced through L&D interventions). Second, there may be administrative barriers to obtaining or maintaining data (e.g., having limited learner contact after Tiers 4, 5 and/or 6).

Before moving on, it is worthwhile noting that it is not necessary to measure each of the lower Tiers of the LTEM considering the higher Tiers (e.g., Learning Transfer can be understood without knowing exact attendance figures, but the inclusion of robust lower-Tier data will assist in forming a broader L&D narrative). In addition, the 'distance' between Tiers can act as a useful indicator of direct relevance to Learning Transfer. As such, a dataset comprised of quantitative data from the lower Tiers alone is not a satisfactory measure of Learning Transfer (echoing what was noted in Table 1): and any data claiming to present this will be too tenuous to support.

[3] Arguably, diachronic measurement is comparable to the broader processes of learning and doing: initial learning occurs at one point in time and is then applied, repeated, and reinforced at multiple points in the future.

2.2 - Viewing current NHSBT L&D practice through an LTEM lens

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3 – Recommendations

The following eight recommendations have been compiled through a combination of analysing contemporary research in Learning Transfer, attending L&D presentations, and collating observations from current NHSBT practice. This is presented from a specialism-agnostic perspective to enable wider application, although it is accepted that not all recommendations will be suitable within all L&D NHSBT contexts.

To enhance the usefulness of these recommendations further, they are intended to complement one another should multiple recommendations suit. They are neither mutually exclusive nor completely co-dependent, but – if the context permits – the first recommendation (i.e., Section 3.1) is suggested as a basis on which other recommendations can be based.

3.1 – Implementing Learning Transfer evaluation at the very start

A key suggestion from Learning Transfer advocates (e.g., Paine, 2022; Thalheimer, 2018; Yates, 2022) is to keep Learning Transfer in mind when planning or (re-)designing learning/training events. This matches comments of those from L&D domains of NHSBT who noted that understanding benefits to the organisation 'would have been easier if we had planned it in from the start.'

Typical models and frameworks for (re-)designing learning/training events often focus on questions such as 'What do we want people to learn?' or 'How do we want behaviours and skills to change?' or 'How will we know if people have acquired knowledge?' (i.e., questions that relate to factors identified in Table 1, facilitated by models such as ADDIE; see Grafinger, 1988). These questions may occur across a portfolio of activities or on a smaller, course-by-course or even lesson-by-lesson basis. From the perspective of the LTEM, these questions are useful for obtaining data for Tiers 1 through 6. In other words, Learning Transfer is rarely addressed at this stage, and if questions arise regarding how L&D interventions relate to improvements in the organisation, responses may lack robust data due to this lack of forward planning.

Keeping Learning Transfer in mind at the planning stages is thereby crucial, and the LTEM (see Figure 1) can be used as a guide. To assist this further, a non-exhaustive selection of questions is presented below which may be incorporated into such planning events:

- How will we measure each part of the LTEM? (e.g., qualitatively, quantitatively, or a mixture; see Section 3.2)
- At which points in time can we obtain data to evaluate Learning Transfer? ('points' because any data comparison for Learning Transfer evaluation should be over time or 'diachronic;' see Section 3.3)
- Who needs to be involved to ensure that Learning Transfer can be measured successfully? (e.g., learners, mentors, observers, managers, third-party administrators, etc.; see Section 3.4)
- To which of the company's strategic goals does the learning/training align? (Learning Transfer should demonstrate to L&D teams that interventions are working *and* ideally demonstrate to the organisation that these are timely, relevant and in accordance with priorities; see Section 3.5)
- What are the most appropriate measures to show that the Learning Transfer is having a positive impact towards these strategic goals? (e.g., qualitatively, quantitatively, or a mixture; see Section 3.2).

3.2 – Qualitative discussion combined with quantitative insight

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3.3 – Accepting and promoting Learning Transfer as diachronic

As suggested in the previous section, data associated with lower Tiers of the LTEM can be obtained quickly, whether this is during or immediately after a learning event. These 'quick wins' are often favoured in business contexts and can provide a certain degree of insight.

However, gaining sufficient evidence for Learning Transfer will not occur quickly. As will likely be obvious at this point, the inherent nature of Learning Transfer is one that needs time to gather sufficient data on behavioural and skill changes (Hall, Smith and Dare, 2014). This assumes a minimum of two time points for comparison: one at the end of the learning event, and the other(s) being after learners have had sufficient chance to apply the learning.

If Learning Transfer is to be taken seriously, there needs to be an acceptance of this 'diachronic' nature. As suggested in Section 3.1, this should be integrated into the very start of any planning and/or (re-)design, helping not only to ensure that goals and outcomes have Learning Transfer in mind, but also to reinforce to all parties that time is a necessity.

This may be met with resistance if the culture of a domain favours rapid and continuous growth. In these instances, data relating to lower LTEM Tiers may be used to offer more immediate insights (but see Section 3.7 for the limitations of this). Regardless, explaining *why* time is needed with Learning Transfer and *how* this will be reliably measured should provide a good basis from which ideas and opinions can evolve to accept this necessity.

3.4 – Maintaining connections to track Learning Transfer

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3.5 – Aligning learning to, and measuring Transfer against, strategic goals

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3.6 – SEDA implementation for Tiers 5 and 6

This recommendation is useful for gathering suitable evidence at lower Tiers. Thalheimer (2018) implies a distinction in 'competence' at Tiers 5 and 6: the former Tier seeks evidence of making decisions, and the latter Tier seeks evidence of being able to take appropriate action based on those decisions. In many cases, these points may be conflated (i.e., if a decision can be suitably made, then the resulting action – both the action itself and how it is performed – may be falsely assumed as part of that decision, rather than asking for this openly).

A hypothetical example: a summative assessment for a Plasma Donation course has scenario-based questions asking the learner to decide how to proceed with a Plasmapheresis machine error occurring mid-donation. The available responses include 'pause the donation on the Plasmapheresis machine' and 'explain, apologise and reassure the Donor,' from which the learner picks a response and is given immediate feedback. This demonstrates Decision-making competence (Tier 5) but this does *not* provide insight into the learner's resulting actions. Therefore, further questions to build on this response would be useful. These may include checking a specific set of agreed actions (e.g., 'How would you pause the Plasmapheresis machine?') or requiring something more qualitatively in-depth (e.g., 'How would you begin your explanation of the event to the Donor?)". These both start to address Task competence (Tier 6).

Measuring Tiers 5 and 6 will likely require adaptations to some current assessment practices. Using Thalheimer's (2018) SEDA guide (see Figure 2) can help to identify whether only decisions are being assessed, and therefore if additional steps are required to provide sufficient evidence for task competence.

3.7 – Using and accepting the limits of lower-Tier data

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3.8 – Microlearning as conduit for Learning Transfer

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3.9 – Influencing Learning Transfer via Framing and Consequence

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4 – Conclusions and Limitations

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Appendix I – A Sample of Metrics and Methods of Learning Transfer Evaluation

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Appendix II – Visual guide of implementing recommendations

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