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Evidence-informed Evaluation of EdTech (3E).

A Dutch Framework for Continuous Assessment of EdTech Effectiveness

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This framework was designed for Npuls by Manika Garg, PhD. (The Hague University of Applied Sciences, project leader and final editor) and Theo Bakker, PhD. (The Hague University of Applied Sciences, reviewer). We thank all the experts we interviewed, as well as colleagues at Npuls and SURF and the advisory board members who read the document for their input. The original document was written in English. A Dutch version of the document will also be available.

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Introduction

Educational Technology (EdTech) refers to digital tools designed to advance education by enhancing teaching, learning experiences and streamlining administrative tasks[1]. These tools play an increasingly central role in education, transforming how students learn, teachers instruct, and institutions manage resources[2].

> "We could do without educational technology, but we wouldn't provide the best education without it."
>
> **Silvester Draaijer,**
> Programme manager VU Education Lab,
> Vrije Universiteit Amsterdam

An EdTech ecosystem includes various stakeholders such as students, educators, institutions, EdTech providers, investors, policymakers, and researchers[3]. Each stakeholder plays a crucial role: students and teachers utilise the technology, institutions drive adoption, EdTech providers and investors foster innovation, policymakers establish regulations, and researchers analyse the need, design, and effectiveness of tools to shape future developments.

Figure 1. The EdTech Ecosystem

While EdTech has the potential to enhance learning, its effectiveness depends on the right fit with the educational context[4]. When EdTech is used in the wrong context, it can lead to no improvement or even negatively impact educational processes by increasing confusion and disengagement[5]. It is commonly observed that many institutions procure EdTech based on hype (because it is popular) or faith (because others are using it) rather than on robust evidence of their effectiveness[6,7]. Because institutions do not demand evidence, EdTech providers do not feel the need to rigorously evaluate their products, creating a cycle where tools are used without clear evidence of impact. The lack of evaluation also results in the presence of many low-quality EdTech tools that increase screen time without improving learning[8,9]. These tools may appear successful because students spend more time using them, but engagement with technology does not always translate to meaningful learning[10].

This highlights the need for an evidence-informed evaluation of EdTech tools to assess their effectiveness and determine the contexts in which they work best. While evaluation alone can offer insights into usability and implementation, evidence ensures that evaluations are based on measurable impact rather than subjective perceptions or engagement metrics.

We propose a framework for Evidence-informed Evaluation of EdTech (3E) designed for the Dutch educational context to address this need. The 3E Framework builds on extensive literature reviews, global best practices and expert interviews. Similar initiatives are already underway in other countries and have shown promising results in improving EdTech decision-making (see more in Chapter 2).

The Dutch 3E Framework offers an evidence-informed[a] approach to evaluate the effectiveness[b] of EdTech. A key feature of the framework is its emphasis on continuous evaluation rather than static, one-time validation, ensuring EdTech tools are improved over time. The framework is a step towards more effective technology integration in education by making evidence-informed decision-making (in the context of development, procurement and enhancement of EdTech) an accessible and actionable process.

The primary aim of the Dutch 3E Framework is not to mandate evaluation for all tools but to promote a culture where evidence-informed decision-making is embedded in all EdTech-related processes. This framework serves as a practical guide on how evidence is generated, interpreted, and used to develop, procure, and improve EdTech effectively.

The framework is expected to facilitate meaningful discussions within the Dutch education community about evidence-informed evaluation of EdTech and help navigate the complexities of technology integration in education.

[a] A lack of evidence does not mean a tool is ineffective. It may simply mean the tool has not yet been formally tested or is still in early development. In the absence of evidence, the framework encourages critical assessment of choices and generation of own evidence when needed.

[b] When measuring effectiveness, we are determining in which context a tool works best. We acknowledge that effectiveness of tools depends on who is using it, how it is used, and under what conditions.

For EdTech providers, the framework can provide guidance to generating evidence-informed insights about their tools that can help them refine their tools. For institutions, the framework provides guidance on how to interpret and apply evidence, potentially helping them with decisions regarding the procurement of tools that align with their specific educational needs.

Reading Guide

The Dutch 3E Framework is primarily designed for institutional leaders (such as educators and information managers), EdTech companies (including providers and investors), policymakers, and researchers. It offers practical guidance on assessing EdTech effectiveness and provides valuable insights to support informed decision-making on technology adoption in education.

The document is structured into five chapters. **Chapter 1** introduces the concept of evidence and its importance in evaluating EdTech. **Chapter 2** explores the current landscape of EdTech evaluation, comparing global practices with the Dutch context. **Chapter 3** presents the Dutch 3E Framework. **Chapter 4** offers a practical roadmap for educational institutions and EdTech providers to apply the framework effectively. **Chapter 5** concludes the document. An additional appendix provides guidance on applying research methods mentioned in the framework.

We illustrate the insights based on interviews with experts and examples collected from practice. You will find a list of experts we interviewed at the end of this document.

If you have any suggestions after reading this document, please let us know at edtech@npuls.nl and the Pilot hub EdTech community site. We can include them in the next version of the document.

1. Understanding Evidence in EdTech Evaluation

What is evidence?

Evidence can be defined as a fact, sign, or object that makes one believe something is true[11]. In the context of EdTech evaluation, it refers to data, research, and validated insights that demonstrate that a specific tool fulfils its intended objectives within a given context.

Different types of evidence hold varying degrees of weight depending on the rigour of their collection and the reliability of their findings. It can be generated from academic research or internally conducted evaluations, yet all can be valid and important in determining whether an EdTech tool is effective.

Why do we need evidence?

Evidence is essential for evaluating EdTech effectiveness as it ensures that evaluations are based on measurable impact rather than perceptions or popularity[12]. It provides data-informed insights to confirm whether a tool genuinely improves educational outcomes. It does not guarantee what will work in every scenario but provides high-quality insights into what is likely to be beneficial based on existing research and real-world observations.

A culture of evidence-informed evaluation supports continuous improvement by identifying evolving educational needs and ensuring that EdTech tools adapt accordingly. With limited resources, institutions and providers must prioritise tools that align with real educational needs, and evidence helps ensure that investments lead to meaningful educational benefits. It enables them to make informed decisions about selecting, refining, or discontinuing EdTech tools.

Evidence also fosters accountability and transparency among EdTech providers by promoting research-backed claims and discouraging misleading marketing. Policymakers and funding bodies often rely on evidence to shape regulations and allocate resources toward EdTech tools that demonstrate measurable improvements. Embedding evidence into decision-making potentially leads to more effective, sustainable, and impactful technology integration in education.

Metaphor: Evidence as a Compass and a Map

In EdTech evaluation, evidence functions as a combination of a compass and a map. The compass provides direction—helping stakeholders stay focused on their goals, such as improving learning outcomes or addressing specific educational challenges. The map provides orientation—offering a clear picture of the landscape, showing which tools have worked, where, and under what conditions.

Just as the compass and the map are essential for reaching a destination, evidence serves both purposes: it points toward desired outcomes and charts the terrain, making it possible to choose EdTech tools purposefully and develop them in response to actual educational needs.

For institutions, this combined guidance helps in selecting tools that are aligned with real needs. For providers, it supports the design and refinement of tools based on demonstrated impact. In this sense, evidence is not just data or direction—it is both: knowing where you're going and understanding how to get there.

2. EdTech Evaluation: Global Practices versus The Netherlands

Many countries worldwide have acknowledged the importance of evidence-informed evaluation of EdTech and have implemented various certifications, frameworks, and standards to do that [13,14].

> "If the demand for evidence increases through national standards, more EdTech companies will invest in evaluation."
>
> **Michael Forshaw,**
> CEO, EdTech Impact

Pedagogical certifications such as Digital Promise in the United States (US), and International Society for Technology in Education (ISTE) standards provide structured rubrics that enable teachers to evaluate EdTech. Additionally, several countries have established national frameworks for EdTech evaluation, such as the Every Student Succeeds Act (ESSA) in the US and the Australian Education Research Organisation (AERO) in Australia. International organisations, including the World Bank, United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations International Children's Emergency Fund (UNICEF), and Asian Development Bank (ADB), have also set global standards for assessing EdTech. In many cases, investors and funding agencies develop evaluation frameworks such as International Certification Of Evidence Of Impact In Education (ICEIE), to measure the impact of EdTech tools before making financial decisions[15].

While large-scale longitudinal studies on EdTech evaluation frameworks are still developing, the growing body of case-based and policy-driven examples suggests that having a framework guides better choices and also raises the overall quality of EdTech in practice.

Frameworks like the ESSA Tiers of Evidence in the U.S. and the EdTech Impact Quality Framework in the U.K. have already influenced procurement practices. The U.S. Department of Education's What Works Clearinghouse encourages the use of validated interventions. These frameworks have shifted market expectations, encouraging providers to conduct research and improve their products based on user feedback and demonstrated impact. The 5Es Framework (EduEvidence) has already influenced multiple international providers to

begin formal evaluation processes. Moreover, these frameworks have also helped to create a shared language between stakeholders. For example, Educate Ventures (UK) found that using a common framework helped institutions and startups align more quickly on goals.

Unlike other countries, The Netherlands lacks a standardised framework for EdTech evaluation. Institutions and educators have the autonomy to choose EdTech tools based on their needs, often prioritising factors like functionality, cost, privacy, and compliance over evidence of effectiveness. Consequently, discussions on evidence between institutions and providers remain limited.

> "Procurement decisions at Dutch universities lack a standardised approach and often hinge on functionality, cost, privacy, and compliance rather than evidence of effectiveness."
>
> **Bob Mooijenkind,**
> Education advisor, The Hague University of Applied Sciences

While some EdTech companies in The Netherlands recognise the need to evaluate their products, they often encounter challenges in collaborating with researchers and institutions due to the absence of a structured ecosystem that fosters industry-academia partnerships[16].

> "Startups and small EdTech providers face significant barriers in conducting evaluations due to resource constraints and lack of access to testbeds."
>
> **Erwin van Vliet,**
> Associate professor and Programme director
> bachelor Psychobiology, University of Amsterdam

There is a clear need for a common standard or ecosystem to support evidence-informed decision-making in EdTech in The Netherlands. The Dutch 3E Framework is a step towards this direction. It builds on global best practices and responds to the unique needs of the Dutch educational context.

3. The Dutch 3E Framework

The Dutch 3E Framework is a practical guide designed to evaluate the effectiveness of EdTech tools based on the quality of evidence that supports their impact on education. It is to be noted that when we refer to evaluating tools, we mean the evaluation of one or more specific functionalities within the tool. A tool may offer several functionalities— and each functionality may require separate consideration during evaluation. This also means that a tool can be evaluated for different functionalities at the same time.

> The Dutch 3E Framework organises evidence into three levels[c] — Bronze, Silver, and Gold.

These levels indicate how much confidence we can have in an EdTech tool's effectiveness. Bronze-level tools have some supporting evidence but require further research, Silver-level tools show stronger proof of impact, and Gold-level tools meet the highest standards of rigorous studies demonstrating success across multiple contexts. Since each level builds on the one before it, tools can progress as more evidence is gathered.

> Each evidence level represents a varying degree of confidence in a tool's ability to achieve its intended educational outcomes. The stronger the evidence supporting a tool, the greater the assurance that it produces meaningful improvements in education.

To be classified at a specific evidence level, a tool must meet the research standards defined for that level. While Bronze-level classification may rely on non-empirical sources such as logic models or expert consultation, Silver and Gold levels require at least one well-conducted study demonstrating a positive impact. Here, 'positive impact' is defined as a measurable improvement in the tool's intended outcome—this could include academic performance, engagement, or other educational goals, depending on the context and purpose of the tool.

[c] The evidence levels mentioned in the Dutch 3E Framework are inspired by the 5Es Framework introduced by Professor Natalia Kucirkova in 2023.

A key aspect of this framework is that it only considers positive evidence.

Rather than focusing on tools that lack research or may have a negative impact, it highlights those that have been tested and shown to have positive outcomes. However, this does not mean that tools without evidence are dismissed; rather, they require further research before they can be confidently recommended. The aim is to promote the quality of EdTech tools by encouraging evidence-informed processes rather than merely validating tools. The idea of using only positive evidence for evaluation is highly recommended by EduEvidence and its accompanying five reports[17].

Another important feature of the framework is that it follows a continuous improvement cycle. This means that even if a tool reaches the highest level of evidence (Gold), the evaluation process does not stop. Instead, evidence continues to be gathered so that the existing tools can be adapted and improved based on new research, evolving educational needs, and technological advancements.

The continuous improvement cycle ensures that tools remain relevant, effective, and aligned with real-world classroom experiences over time.

The following section provides detailed explanations of the three levels of evidence and corresponding research methods. For additional details on research methods, refer to the Appendix.

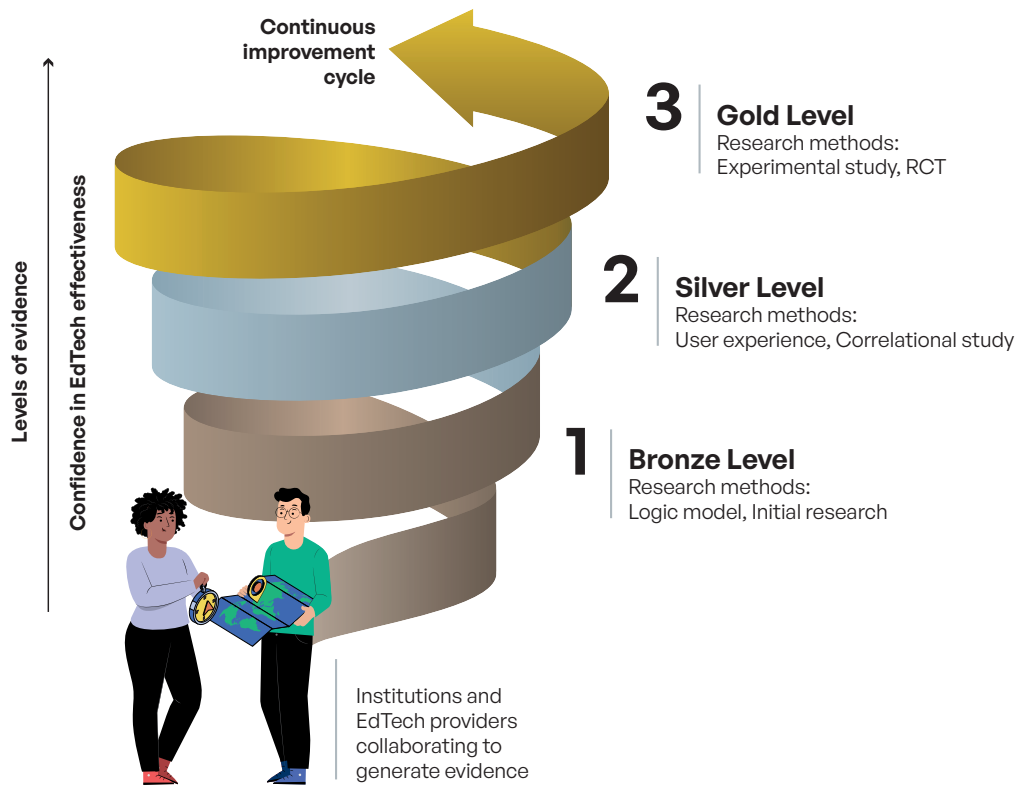
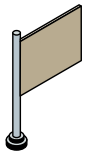


Figure 2. The Dutch 3E Framework

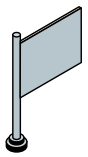
Levels of evidence

The **Bronze Level** represents the basic standard of evidence, relying on non-empirical research without measurable data. Findings are derived from theoretical models rather than real-world validation and reflect whether the tool is based on solid educational theories and well-replicated research studies, Research methods include logic model creation, building a theory of change, desk-based research and expert consultations to hypothesise the effectiveness of an EdTech tool.



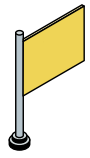
Example of research within Bronze Level: A startup develops an AI-powered reading assistant to help early learners improve literacy skills. At this stage, the tool has not undergone formal evaluation but is supported by solid educaional theories and well-replicated research studies on AI-driven language learning. The developers create a logic model outlining how the tool is expected to enhance reading comprehension and engage with literacy experts and educators for qualitative feedback. This tool requires further research and testing before it can be confidently recommended, but it has potential based on theoretical grounding and expert consultations.

The **Silver Level** involves experimental studies without a control or comparison group, meaning causality cannot be definitively established. Research methods include correlational studies, user experience research, contribution analysis, and small case studies. While findings can suggest a positive association between EdTech use and relevant outcomes, they lack the rigour required to confirm causation.



Example of research within Silver level: A university integrates an adaptive learning tool to personalise study materials for students. The university conducts a correlational study, analysing tool usage and student grades over a semester. Results show that students who frequently use the tool tend to perform better, but because the study lacks a control group, causation cannot be established. While the tool shows promising associations with improved learning, more controlled studies are needed to confirm its direct impact on student outcomes.

The **Gold Level** represents the highest standard of evidence. It requires experimental studies with a control or comparison group to establish strong causal relationships. Research methods include Randomized Controlled Trials (RCTs), quasi-experimental studies, and case-controlled studies. This level ensures that findings are statistically significant and evaluates effectiveness across different subgroups, explaining any disparities.



Example of research within Gold level: A government education department pilots an AI-powered tutoring system across 50 schools. Students are randomly assigned to either use the AI tutor or receive traditional instruction. After six months, test scores in the AI group show a statistically significant improvement in problem-solving skills. Since this is an RCT, the study provides strong causal evidence that the AI tutor directly enhances student learning. This tool has demonstrated strong causal evidence of effectiveness, but continued research is necessary to ensure its impact remains consistent across different educational contexts.

The following table can be described as an evidence library that summarises the type of research required for each evidence level, how the evidence can be generated, and what makes it credible.

Table 1. Evidence Library

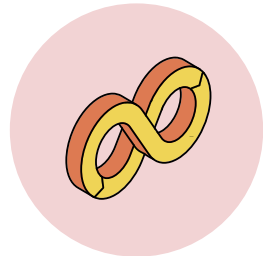
Evidence Level	Research approach	Method	Description	Factors increasing credibility
Gold	Experimental studies with control / comparison groups, establishing causation	Randomized Controlled Trials (RCT)	• Uses randomization to assigns participants to groups (control and comparison) • Quantitative and qualitative analysis • Controlled environment • High internal validity • Strong causal inference	Large sample sizes, consistency across sites, replication
		Experimental Study	• Compares pre-determined or self-selected groups, without randomization. • Methods include quasi-experimental studies, case-controlled studies • Quantitative and qualitative analysis • Real-world context	Well-matched groups, replication

Evidence Level	Research approach	Method	Description	Factors increasing credibility
Silver	Experimental studies without control / comparison groups	Correlational Study	• Examines relationships between variables but does not establish causation • Methods include small-scale case studies, observational study, ethnography, contribution analysis • Quantitative metrics (e.g., engagement, retention rates) • Qualitative analysis	Strong statistical analysis, large sample sizes, multiple data sources, recent study conducted by independent body (other than tool provider) in a real-world environment in diverse settings
		User Experience Research	• Assesses satisfaction, usability, and tool perceptions through user feedback • Methods include surveys, interviews, personal anecdotes, App store feedback, participatory design, client endorsements	Large and diverse user base, multi-stakeholder feedback, high response rates
Evidence Level	**Research approach**	**Method**	**Description**	**Factors increasing credibility**
Bronze	Non-empirical research with no measurable evidence	Initial Research	• Relies on secondary sources to build a rationale • Methods include literature reviews, consultations with domain experts, stakeholders and like-minded organizations	Peer-reviewed and recent studies supported by multiple sources
		Logic Model	• Outlines inputs, activities, outputs, hypothesized to lead to impact. • Methods include building a theory of change and conceptual frameworks	Well-documented rationale, step-by-step justification
No Badge	No evidence to support effectiveness			

Continuous improvement cycle

A key feature of the Dutch 3E Framework is its continuous improvement cycle —unlike static, one-time certification models found in other frameworks. Even when an EdTech tool reaches the highest level of evidence, evaluation does not stop. This means evidence is collected and updated regularly to ensure the tool remains relevant as educational needs, technologies, and user contexts evolve. This prevents outdated solutions from being accepted as effective indefinitely and promotes innovation and adaptability.

> "You should not evaluate at the end but rather throughout the development cycle. This prevents late-stage failures and ensures the tool is aligned with real needs."
>
> **Ewoud de Kok,**
> Founder and CEO, FeedbackFruits



There are various ways to promote continuous improvement—for example, by giving a time limit or expiration date to the usefulness of a particular piece of evidence. Just like certain policies or technologies need updating over time, so should the data and research used to evaluate EdTech tools. For example, if a tool was evaluated three years ago in a different context or with outdated technology, that evidence may no longer reflect how the tool performs today. By defining a time limit or expiration date, we can intentionally phase out old evidence, which encourages institutions and EdTech providers to reassess the tool regularly.

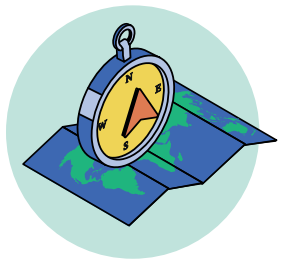
Evidence portfolio

The evidence portfolio is a key output of the Dutch 3E Framework. It serves as a living document where institutions and EdTech providers systematically collect, organise, and update research-based findings on a tool's effectiveness.

"By incorporating these guiding points into your EdTech startup, you can be growing the documentation of the impact of your technology over time. One model that I really like is that of a living evidence portfolio."

Natalia Kucirkova,
Co-Founder and Director, International Centre for EdTech Impact
(Quoted in an article[18] published in Startups Magazine)

The evidence portfolio reflects the implementation of the framework by documenting how an EdTech tool progresses through different levels of evidence (Bronze, Silver, and Gold). It provides a comprehensive view of a tool's effectiveness based on real-world data, research studies, and user feedback. Since the Dutch 3E Framework follows a continuous improvement cycle, the evidence portfolio is not static—it is regularly updated as new research emerges.



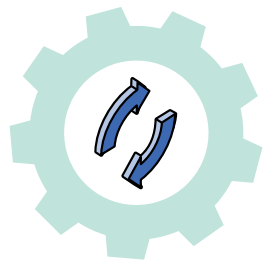
By maintaining a portfolio, institutions gain a reliable reference for making data-informed procurement decisions, while EdTech providers use it to demonstrate impact, refine their products, and establish credibility.

4. Steps to use the framework

This section outlines how educational institutions and EdTech providers can apply the framework in practice. The process follows three main steps: **Collect – Apply – Update evidence.**

1. Collect Evidence – Evidence is generated through public-private partnerships, where institutions and EdTech providers collaborate in co-creation to conduct research and produce reliable evidence on EdTech effectiveness.

2. Apply Evidence – Once generated, evidence is applied to decision-making.
- **Institutions** use the evidence to select tools that align with their specific educational needs.
- **EdTech providers** use the evidence to identify areas for improvement and refine their tools accordingly to enhance their impact.



3. Update Evidence – Evidence collection is a continuous process that evolves with changing needs.
- **Institutions** update evidence based on real-world performance and their evolving educational priorities.
- **EdTech providers** update evidence whenever they make improvements or introduce new functionalities, ensuring that tools remain relevant and effective.

Steps to use the Dutch 3E Framework

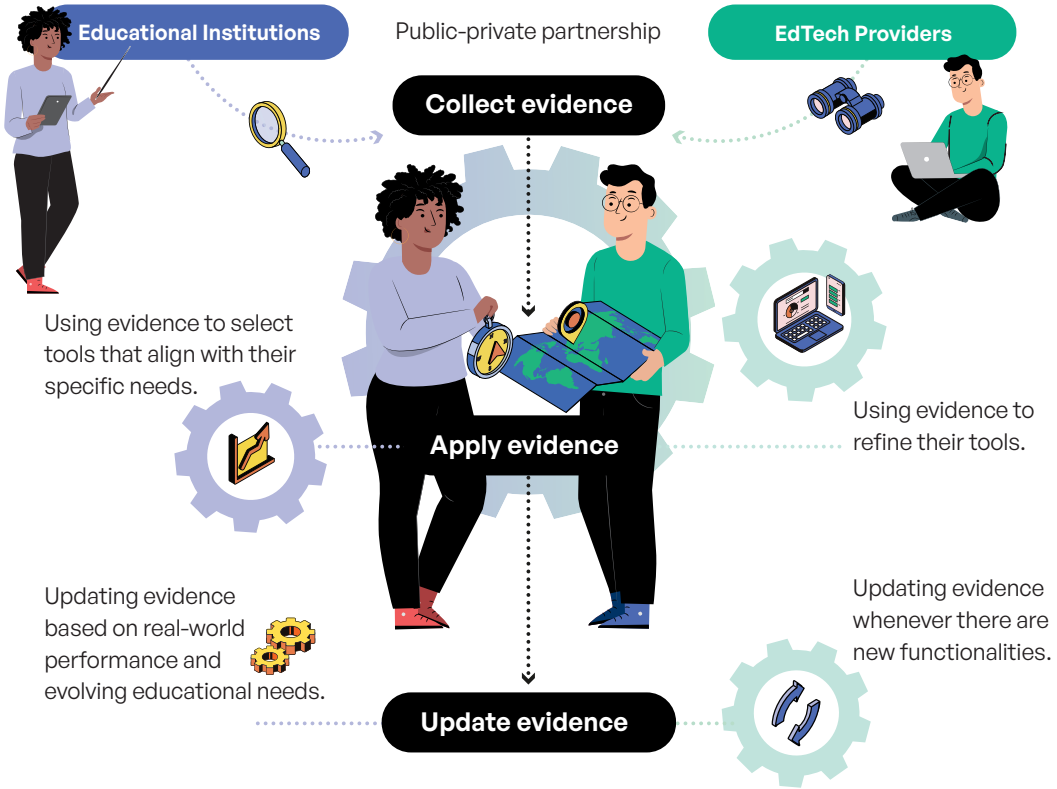


Figure 3. Steps to use the Dutch 3E Framework

5. Conclusion

The Dutch 3E Framework encourages a culture where decisions about EdTech are based on evidence, not assumptions. It creates a natural cycle—better evidence leads to better tools, and better tools generate more evidence. This benefits both institutions, who can select tools that meet their needs, and providers, who gain insights to improve their products.

The framework helps take the first step toward evidence. Its hierarchy structure is not meant to rank tools but to provide an easy, step-by-step process for moving toward effectiveness and staying effective. By guiding providers and institutions along a clear path, it lowers the threshold for engaging with evidence, making the process more approachable and actionable.

To move forward, there are still important questions to address together: Could this framework be useful in the Netherlands? Will this become a formal requirement or a best practice? What would it take to make it work—in terms of governance, research capacity, and institutional buy-in? The answers depend on how institutions and the EdTech industry engage with the framework.

The Dutch 3E Framework lays a solid foundation for deeper collaboration between academia, institutions, and the EdTech sector. When all stakeholders work together to generate, interpret, and apply evidence, EdTech adoption moves from trial-and-error to a strategic and sustainable process. Ultimately, this paves the way for more effective and future-ready educational technology integration.

> The Dutch 3E Framework is your compass and map in the complex landscape of EdTech—pointing toward effective EdTech and showing a path to get there through shared, evidence-informed practices.

Appendix

This section explains the research methods outlined in each evidence level of the framework and demonstrates how they can be applied in practice.

1. Logic Model

A logic model represents how an intervention is expected to achieve its outcomes. It outlines key components, including inputs, activities, outputs, and intended impacts, helping stake-holders understand the **theory of change** behind an EdTech tool. To develop a strong logic model, clearly state:

- What does the product do?
- What impact does it aim to have?
- How will it achieve that impact?

Additionally, making **theories of action** helps clarify thinking and visualise cause-and-effect pathways. It follows a logical sequence: *If (user action occurs)... Then (this construct change happens)... So that (this observable impact is achieved).*

2. Initial Research

Initial research helps establish a foundation for evaluation by leveraging existing knowledge and expert insights. It helps EdTech providers to make informed decisions before advancing to rigorous empirical studies. Key approaches include:

- **Reviewing literature**: Use academic research, reports, and systematic reviews to avoid bias and ensure reliability.
- **Consulting experts:** Engage with specialists to refine research questions, validate methodologies, and ensure alignment with best practices.
- **Engaging with organisations:** Partner with like-minded institutions, professional societies, and research networks to gain diverse perspectives and access valuable insights.

3. User Experience

User Experience research gathers data on how users interact with EdTech tools. It evaluates usability and satisfaction through various methods, ensuring that tools are effective and user-friendly. Key approaches include:

- Collecting user feedback, through personal anecdotes including teacher evaluations, student perceptions, client endorsements, large-scale surveys, and app store reviews.
- Participatory design and co-design, where users are actively involved in product development and refinement.

4. Correlational Study

Correlational studies examine relationships between two or more variables but do not establish causation. These studies help identify meaningful trends and associations that inform further experimental validation of EdTech tools. These studies use quantitative metrics, such as analysing student engagement levels and retention rates (e.g., monthly/weekly/daily active users), while qualitative analysis provides deeper insights through user feedback, behavioural observations, and contextual data. Methods include small-scale case studies such as:

- **Observational Studies** – Monitoring user interactions in real-world settings to identify patterns in tool usage and engagement.
- **Contribution Analysis** – Assessing how specific features or interventions contribute to user behaviour or learning outcomes.
- **Ethnography** – Immersive research involving direct engagement with users in their learning environments to understand contextual factors influencing EdTech adoption.

5. Experimental Study

Experimental studies take place in real-world settings, comparing pre-determined groups to measure impact. While they may lack random assignment, they still provide structured conditions to evaluate cause-and-effect relationships. These studies utilise both quantitative and qualitative analysis to assess outcomes. Methods include:

- **Quasi-Experimental Studies** – Assessing interventions where randomisation is not feasible, using statistical techniques to account for differences between groups.
- **Case-Controlled Studies** – Retrospective studies comparing groups with and without an outcome to identify key contributing factors.

6. Randomised Controlled Trials (RCTs)

RCTs are experimental studies in which participants are randomly assigned to either a treatment or control group to measure the causal impact of an intervention. This method minimises bias and ensures high internal validity when assessing EdTech effectiveness. Variations of RCTs include stepped wedge designs, where interventions are introduced in phases across different groups, and micro RCTs, which test interventions on a small scale before wider implementation.

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5. Floor Visser, MSc., Corporate Information Manager (Amsterdam University of Applied Sciences)
6. Ewoud de Kok, MSc., Founder and CEO (FeedbackFruits)
7. Jitske van Os, BBA., Managing Director (Dutch EdTech)
8. Erwin van Vliet, PhD., Associate Professor and Programme Director Bachelor Psychobiology (University of Amsterdam)
9. Michael Forshaw, CEO (EdTech Impact)

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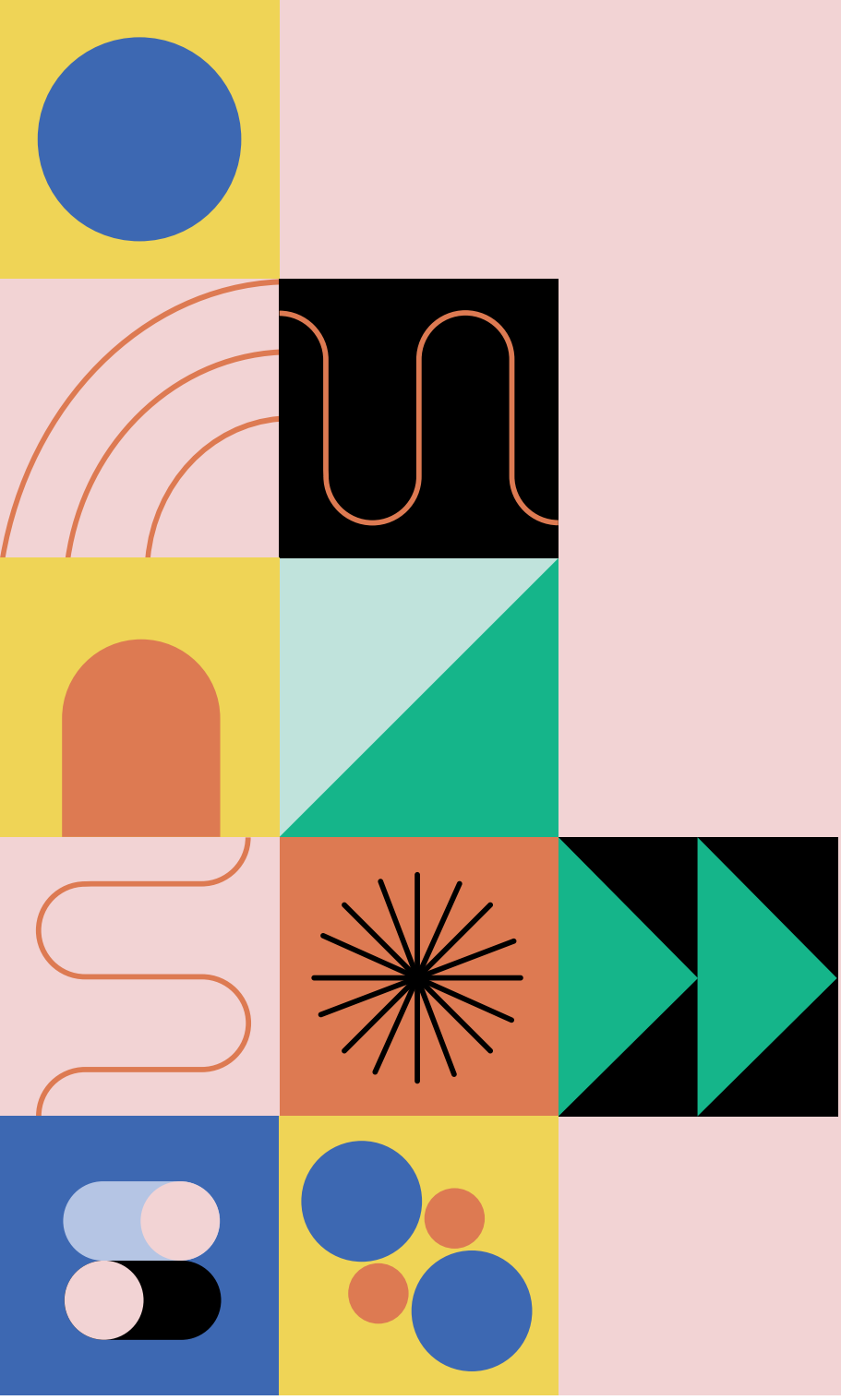

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