

# Technical Sheet



*Safety in construction*

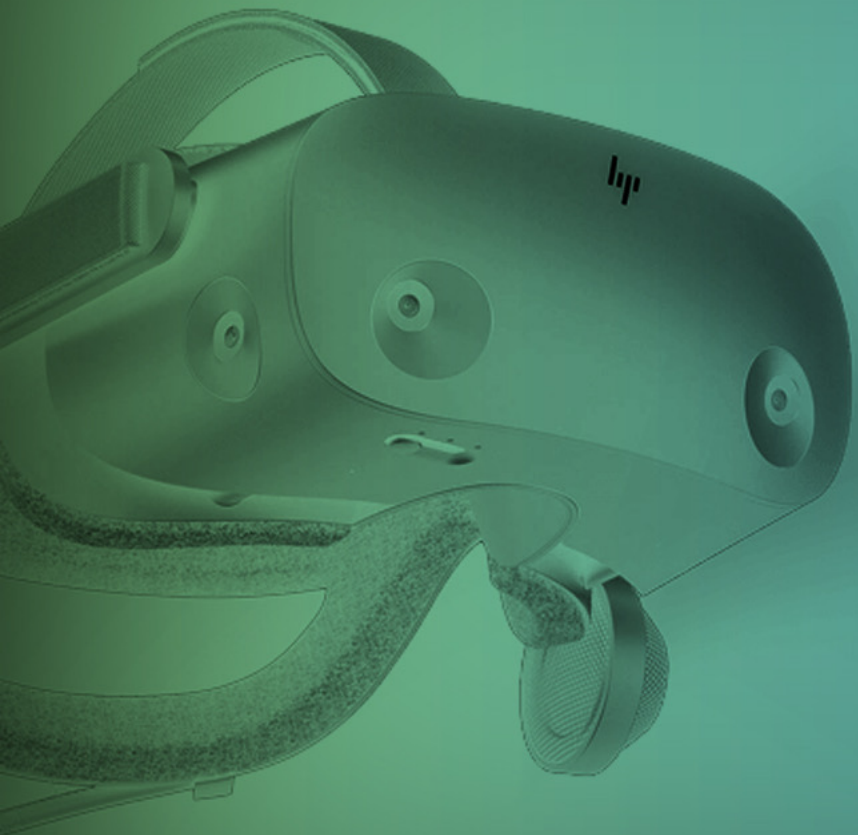


Ludus product aimed at training the ability to detect **risk situations** in the field of **construction**.

## *Safety in construction*

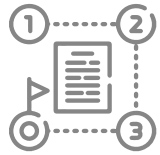
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- > The objective is to offer the trainer a virtual scenario in which the students can practice their **observation skills and knowledge** about risk situations and safety regulations in construction.
- > This product covers a wide spectrum of risks related to protective equipment, general safety and signaling regulations.
- > The student must move around a work and identify different risk situations. At the end of the exercise, all **undetected risks** will be shown to the rest of the class.



01

Simulation  
Content



## Exercise description

### Simulation content

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This product is ready to be used following this **dynamic**:

1

The trainer selects the **risk situations** that he/she wants to work on in the classroom

2

The student puts on the virtual reality glasses and **completes the tasks** for each risk situation that the trainer has selected

3

After each risk situation, a series of **conclusions** are offered both for the student and for the rest of the classroom

4

The trainer can use these conclusions to **reflect** on the risk and/or open a group discussion



## Simulation Content

# Possibility of configuration

Before starting an exercise, the trainer can **configure the exercise to practice**:

- > The **maximum number of errors** allowed to the student.
- > Risk position:
  - **Random** position.
  - **Default** position.



# Exercise description

## Part 1 - Use of protective equipment

The student begins the exercise in a **locker** room where he/she has various protective equipment. The objective is to review each of the protective equipment and equip those that she considers necessary.

At the exit door of the locker room there is a sign indicating both the protective equipment required to access the work and other protective equipment required on stage.

**Protective equipment available** in the first version:

- › Auditory protector
- › Reflective vest
- › Security boots
- › Safety helmet
- › Safety glasses
- › FFP2 Respiratory protection mask



# Exercise description

## Part 2 - Walk through the construction site

Once properly equipped, the student must leave the locker room and go around the work in search of risk situations. The student must identify and correct the risks pointing them out with a laser pointer.

### In the work appear:

- **Risk situations**  
People breaking safety rules. In some cases, if the student does not detect the risk, the person may have an accident.
- **Situations without risk**  
People working correctly following safety regulations.





## Risk situations included

### Use of protective equipment

Before starting, the user must equip himself with **the mandatory protection equipment on site** (Safety footwear, High visibility vest, Hearing protection, Safety helmet).

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### Fall of materials

On the stage there will be a **hole without collective protection** to protect against falling objects. If the risk is detected, the hole will appear covered with a net.

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### People working with a radio without protection

It involves two people cutting rods and bricks with **an unprotected radial**. In case of detecting the risk, the radio will appear with the adequate protection.

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### Cement handling

It is about a person shoveling cement into a concrete **mixer without a mask or safety glasses**. In the case of detecting the risk, the person will appear with both protective equipment equipped.

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### Heavy machinery working without beacons

It is **an excavator working in an area without beacons or signs**. In the case of detecting the risk, the area will appear marked and marked.

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## Risk situations included

### Improper use of a dolly to lift a worker

This is a person raised on the forks of a forklift to access the top of a pallet. In the case of detecting the risk, the person will appear next to the truck with the nails lowered.

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### Using electric tools on wet ground

It is about a person using a **drill**, located on a puddle of water. In the case of detecting the risk, the puddle will disappear and the person will be working safely.

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### Electric tools connected and neglected

It is a series of tools that appear **connected to the network** without anyone working with them. In the case of detecting the risk, the tool will appear collected without connecting to the network.

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### Use of non-approved domestic electric strip

It is about a person operating a radial saw plugged into a domestic power strip. In the case of detecting the risk, the **radio will appear connected to a temporary electrical panel**.

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### Material on the ground and clutter

It is a set of broken bricks or tools lying on the ground in a **passageway**. In the case of detecting the risk, the material will disappear.

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## Risk situations included

### Elevated area without collective protection

In one of the buildings there will be an elevated area (2nd floor) **without a guardrail**. In the case of detecting the risk, the railing will appear in place.

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### Corrugated rods of the unprotected structure with cover

The scenario will include a building foundation with **protruding unprotected rebar**. In the case of detecting the risk, the rods will appear protected with a cover.

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### Non-approved scaffolding

Some **non-approved scaffolding** appears on stage. In the case of detecting the risk, the railing will appear the correct scaffolding.

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### Bar leaning against the wall

On the stage there are **some metal bars leaning on the wall** that can fall. In the case of detecting the risk, the bars disappear.

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### Access ramp without railing

On the stage there is a ramp that allows you to go from one level to another. **The ramp is devoid of one of the safety rails**. In the case of detecting the risk, the railing appears in place.

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## Product Description

# Accidents

- > **Accidents caused by falling objects**  
The student can suffer an accident in the first person if he stands under a hole without collective protection that protects from falling objects.
- > **Injuries derived from the use of a radial without protection.**  
In case of not detecting one of the risks in which a person uses a radial to cut rods or bricks, the user will be shown how said person suffers an accident.
- > **Fall of a worker to a different level due to lack of collective protection.**  
If an area without collective anti-fall protection is not detected, the user will be shown how a person suffers an accident (fall to a different level).
- > **Corrugated rods without protection mushrooms.**  
If the unprotected rods are not detected, the user will be shown how a person suffers an accident (fall to the same level + perforation).



## Product Description

# Accidents

- > **Fall to the same level**

The student can suffer an accident in the first person if he stands on material lying on the ground (bricks and tools).

- > **Backhoe hit Injuries**

In case of getting too close to the backhoe, the student may suffer a first-person accident when being hit by the articulated arm of the machine.



## Product Description

# Situations that do not involve risk

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**Different people will appear on stage working safely:**

- > People working safely with tools
- > People handling cement safely
- > People working at height protected by a railing (collective protection)
- > People moving around the building



## Product Description

# End of the exercise

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The exercise can end in different ways:

- **The trainer ends the exercise.** The trainer has an option that allows him/her to end an exercise at any time. In this way, the student is shown a screen with the risks not detected up to that moment.
- **The student completes the tour of the work.** When the student goes through the entire work, the exercise ends automatically and a screen is displayed with the risks not detected up to that moment.
- **An accident occurs.** Both the student and the people working on the site can suffer accidents if they fail to comply with the safety regulations. In the event of an accident, the student will appear in an infirmary where the consequences of the accident will be explained.





## Exercise duration

- If the trainer wishes, in case the student has made mistakes, he/she has the option of repeating the exercise until he/she considers it necessary.
- The average time to complete an exercise is **10 minutes**.
- In case an exercise takes too long, the trainer can force the end of the exercise and go directly to the results to see the errors made so far.

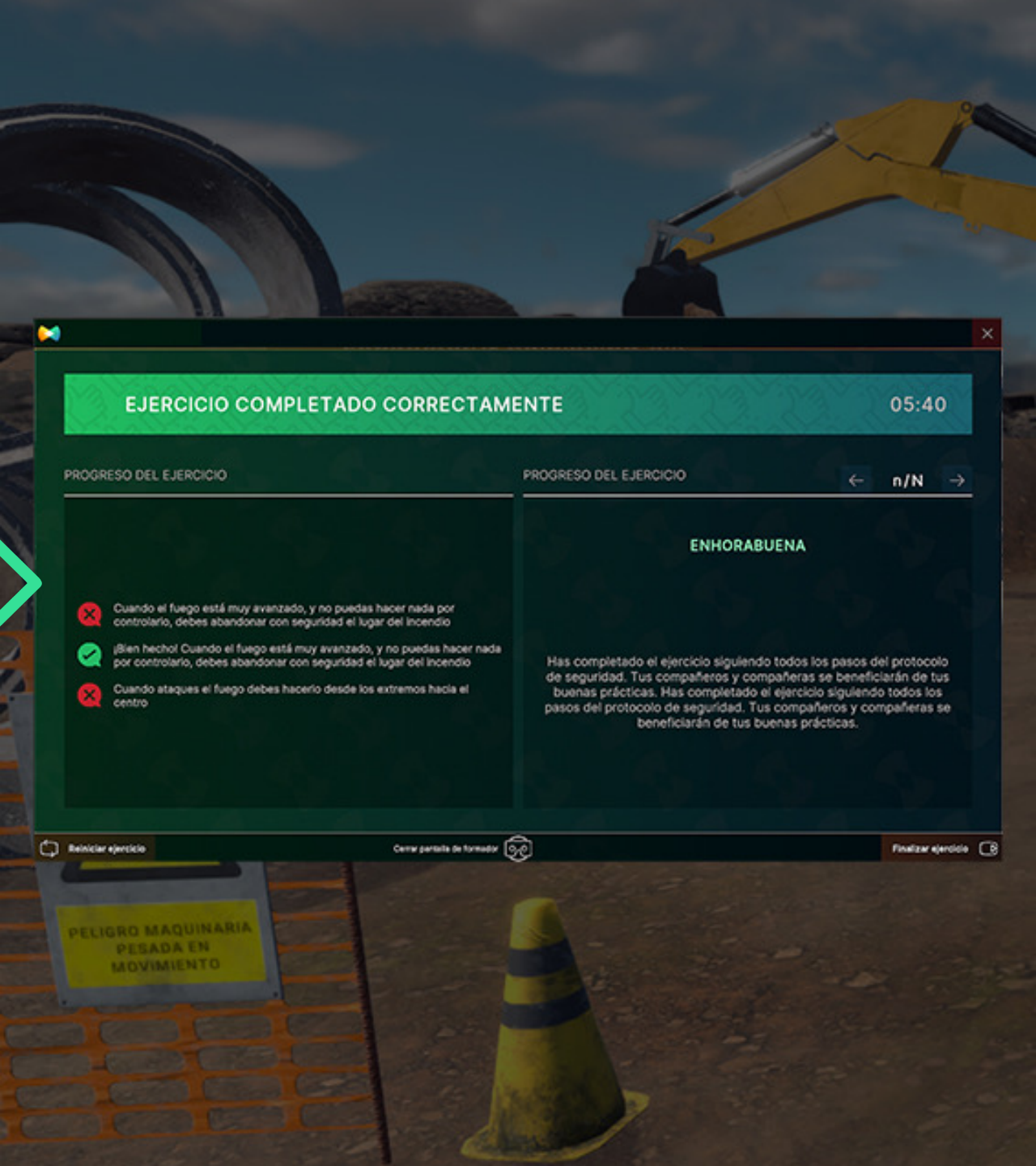


## Statistics system

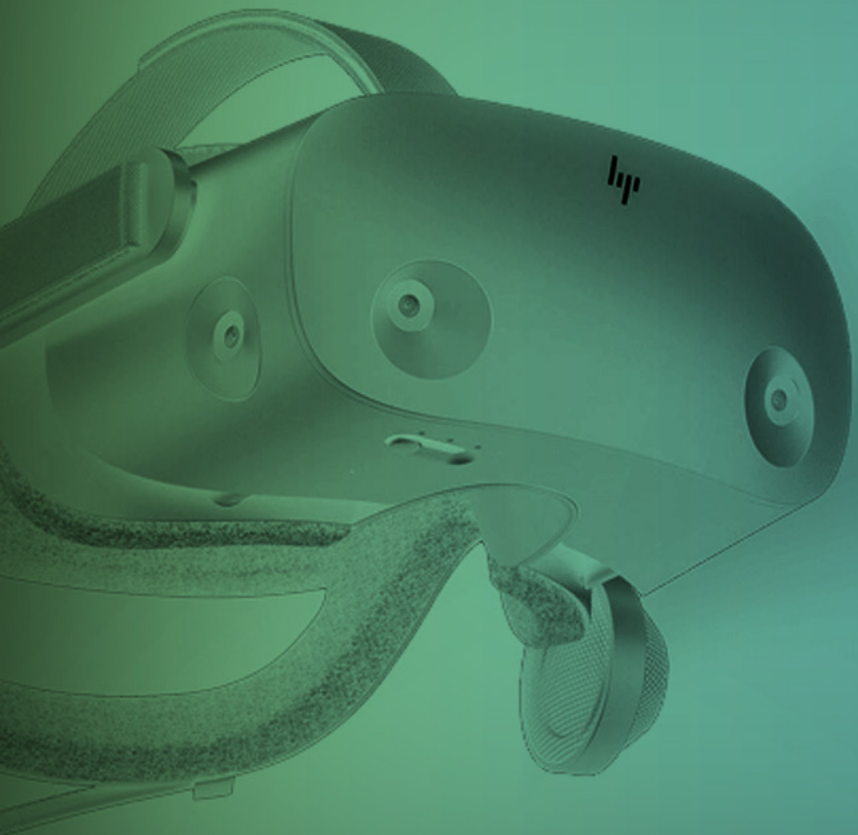
### Simulation content

Basic statistics shown to the user at the end of the simulation:

- Exercise duration time
- List of mistakes made







02

Future  
updates



Future updates

## Scenarios with different phases of work and guilds

Other work scenarios representing different phases and guilds will be included:

- > Plumbing
- > Electricity
- > Carpentry
- > Painting





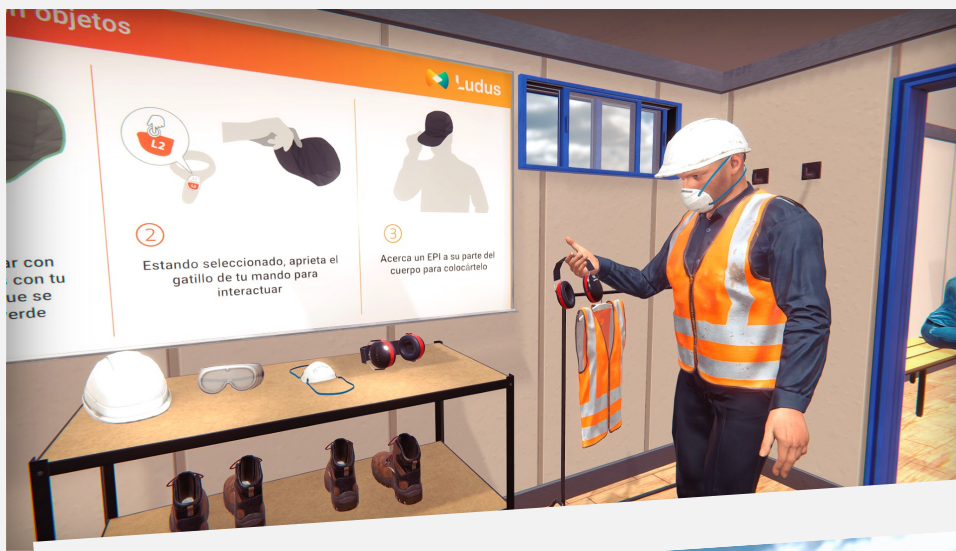
Future updates

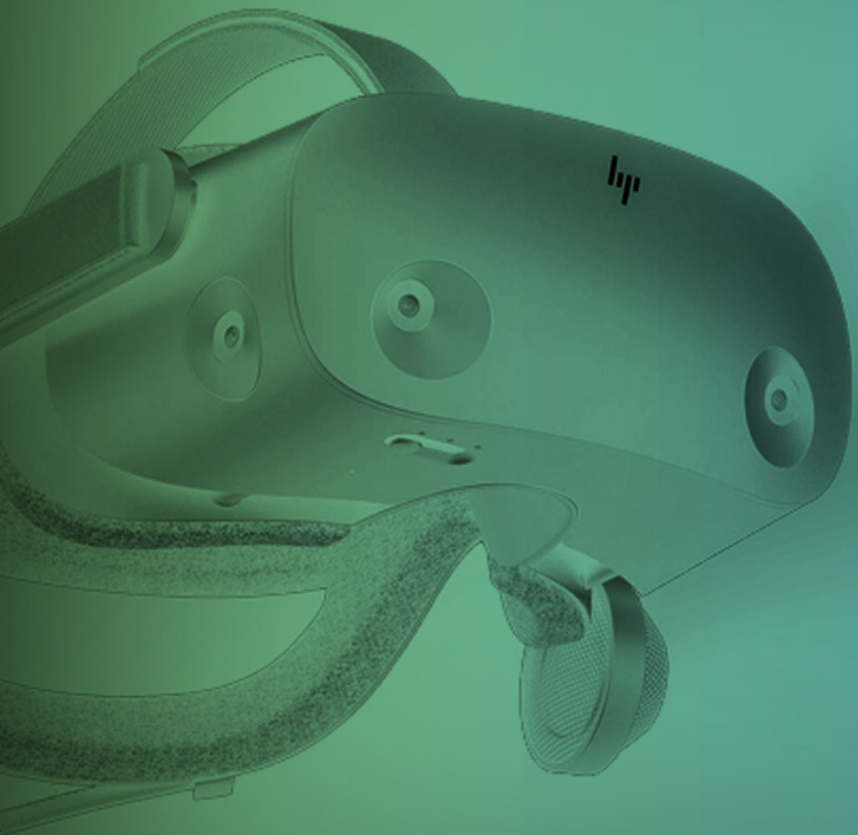
## New risk situations

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**More risk situations and safe situations** will be included in the scenario to increase the variability of the scenario







03

All trainings,  
one platform

# First European Platform

for realistic training in **labor and health security** with  
Virtual Reality

## Platform advantages



### Content access

Living products in  
continuous improvement



### Teacher training

Pedagogical support for  
teachers in the use of VR



Hardware  
at **cost price**

*Learn by Living*

**Improve your classes on  
safety and health**, adding an  
immersive component to the  
trainings



**19 complete products** with more than 500 exercises.  
25 products by the end of 2022.



- > Road safety
- > Plant risk prevention
- > Fall protection
- > Safety officer at heights
- > CPR
- > Overhead Crane
- > PPE. Personal Protective Equipment
- > Warehouse safety
- > Plant risk assessment
- > Electrical hazards
- > LOTO
- > Fire safety
- > Confined Spaces
- > Safety in construction
- > Mobile elevating work platforms
- > Postural ergonomics
- > Forklift risks
- > Hand Injury Prevention
- > Use and Handling of FHCs

We are continually adding **new updates** and content to the platform



# Calendar

of incorporation to Ludus

01

## Demo

Product demonstration.  
Financial proposal  
presentation.

02

## Suscription

Platform hiring.  
Reception of the material.

03

## Onboarding

Welcome pack.  
Commercial arguments.  
Graphic resources.  
Marketing sheets.  
Video tutorials.  
Training for trainers.

04

## VR training

Unlimited use of the training  
resources available on the  
platform.  
Platform maintenance and  
update.



# Why VR?

The impact that virtual reality has on learning is **remarkable**



Active learning

Based on Edgar Dale's Pyramid of Learning


VR learners are...

 **4 times**

**Faster at learning** than in a conventional classroom

 **3.7 times**

**More connected** to the content than learners in a classroom

 **2.3 times**

**More connected** to the content than learners in e-learning

 **4 times**

**More concentrated and focused**



# *Learn by Living*

[ludusglobal.com](https://ludusglobal.com)