

Let us focus on essentials now when research has opened all the means needed for supporting **all** to acquire

# Full Literacy

## making learning from schoolbooks successful

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where we have developed digital, game-like learning environments supporting reading skills to All

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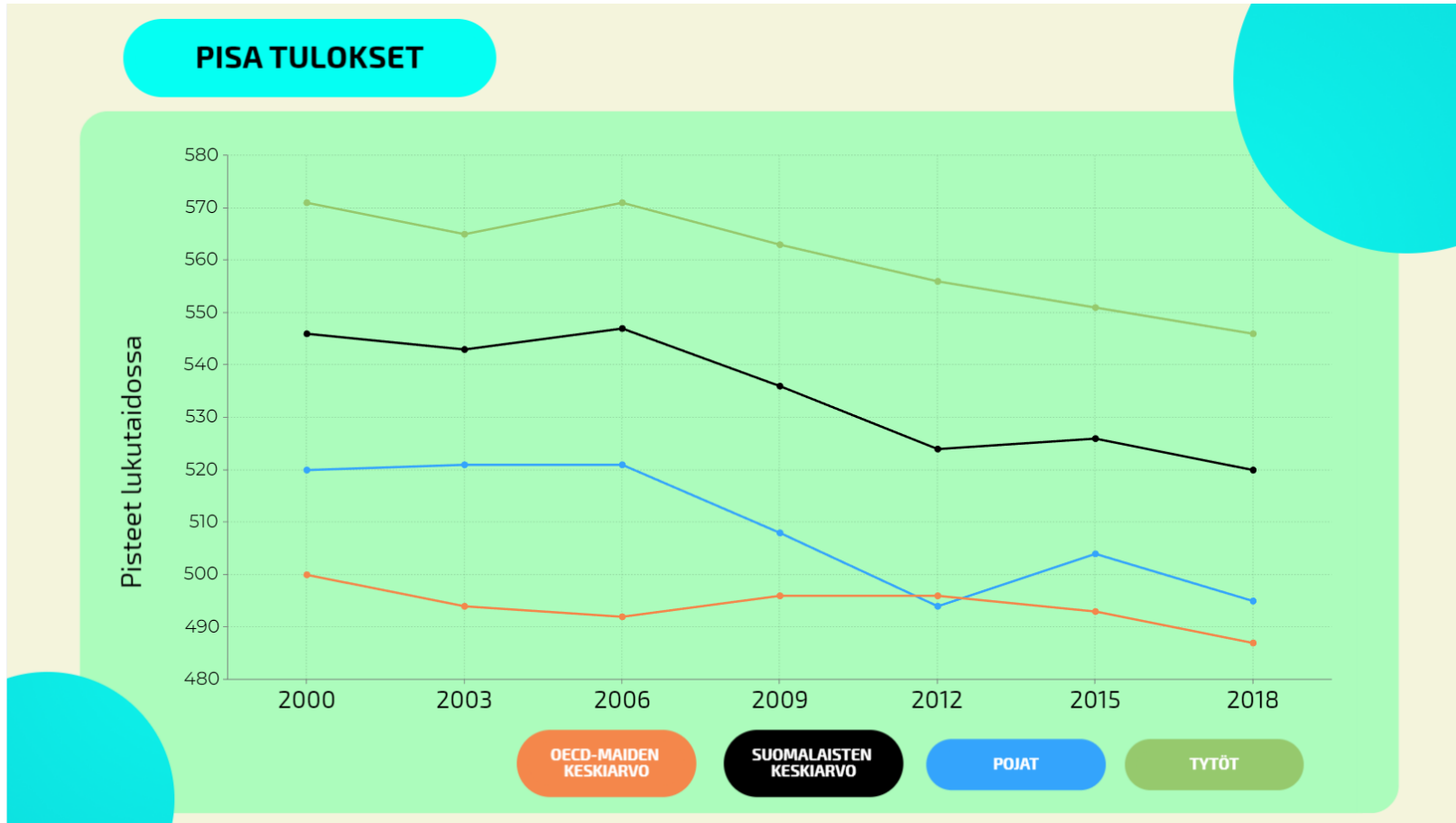
# About me, my goals & startup=CGWL and what it does

- I have run more than 50 years research of **learning (from associative learning -- )**
- >20 ys **reading research** in Centres of Excellence of Research of the Academy of Finland
- My goal during the last 15 years: develop **digital tools to support reading acquisition**
- Now retired and **CEO of ComprehensionGame World Learning Ltd** owning latest games
- These support learning of the most important skill, **Full Literacy (FL)=learning by reading**
- These **digital learning environments** can be made helping via net to all 4-/8- year olds
- One of these has been used by all Finnish children for >10 ys to learn **basic reading skills**
- **Basic reading skills are not enough for FL**, but are necessary first steps for learning FL
- Rural Zambian illiterates have learned the FL using GraphoGame+ComprehensionGame
- My newest tool StoryReader(SR-tablet) is made to help all who own no books to reach FL
- SR is based on so called **statistical learning – offering FL via implicit reading acquisition**
- SR works in Africa for rural children who have no access to books and works from 4.y-
- For older we use GG+CG combination added by Artificial Intelligence to offer knowledge

# Literacy is declining fast among boys in Finland!

- If we take scientific data seriously we look PISA and PIRLS results (see Fig.)
- In a most literate country of the world, Finland, the decline of literacy is fastest
- The decline is continuing now for more than 10 years
- If we would rely on PISA and PIRLS we had to invent means how to stop that
- Present means: elevate interest in reading via diplomas affecting girls, not boys
- All Finns have sufficiently accurate and fluent basic reading skills (BRSs)
- But **BRSs are not enough**, sufficient leisure reading would correct it naturally
- This was how full literacy was learned earlier, but **boys are no more reading**
- Reason: **natural way to reach FL by leisure reading** is not happened any more
- PISA, PIRLS + school learning results show it in convincing way
- To compensate this lack we developed **ComprehensionGame** for boys
- This can be used with best results in the context of reading/learning lessons

# The declining PISA-result in Finland



# Summary – how to train Full Literacy (FL) to All

- **GraphoGame (GG)** trains the basic reading skills and **ComprehensionGame (CG)** then the FL
- To reach FL via ComprehensionGame one has to have fluent basic reading skill as starting point
- Using GG and GL in turn has been shown to train illiterate rural Africans to FL
- Because most Africans have no books for learning FL naturally, they need our **StoryReader game**
- It is planned to train both steps, basic reading skill (BRS) and FL by applying statistical learning
- This new game starts working when children become interested in listening written stories
- In developed world children can use leisure reading after learning BRS to make them to reach FL
- But today more and more boys are no more reading outside school and fail to learn FL
- Using CG boys can **reach the goal of reading, ie. FL, if teachers accept learning to implement CG**
- To elevate pupils' learning from schoolbooks teachers can help them+follow results by using CG
- This happens by **helping pupils to find the key contents (sentences)** of the lessons for storing
- **Also critical reading is acquired** when pupils have to judge which sentences are true which not
- The method to store knowledge to long term memory is to use working memory as the mediator
- Because working memory has a limited capacity it can handle only a few (key)sentences at time
- Optimized interaction between these memories help storing knowledge efficiently
- This all is possible via our games which work via net and provide also knowledge by using AI
- **All our games can be implemented to work in whatever language for learning training FL**

# How to try the ComprehensionGame?

- Learning more about CG and playing it in net is possible from :
- <https://comprehensiongame.com/en>
- The game itself can be tried from
- <https://api.comprehensiongame.com/play-alpha>
- Better use Chrome for trying.
- **THANK YOU FOR YOUR ATTENTION!**