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- I’m the kid on the pony This photo was taken in Morningside, Alberta (Canada) in 1960; the year Graham Nuthall started his classroom research and I started elementary school.

The Hidden Lives of Learners

Graham Nuthall's little known, groundbreaking research

This is the story of Graham Nuthall's phenomenal research. Graham was a New Zealander who started recording classroom conversations while he was still a student. He kept on doing this during his whole career from 1960 until 2000. He wrote the Hidden Lives of Learners in 6 months while he was terminally ill.

Topics

- Historic Overview
- Outcomes
- Recommendations

The story of Nuthall's research is one of an expedition into unknown territory. It starts with the question: What is really going on during a lesson and it ends with the question: what makes learning happen?

1960-1968

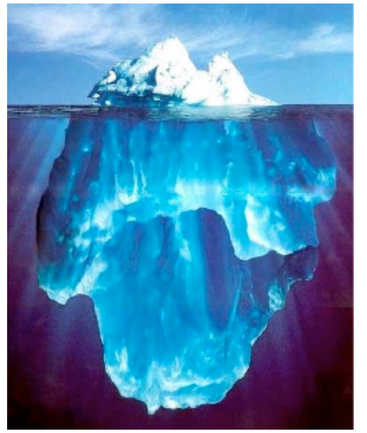
- Experienced teachers
- Microphone as close as possible to th students
- Analyse interaction between teacher and student
- Observation

It all starts in 1960 when as a young student Graham obtains permission from a number of experienced teachers to record their lessons and a number of students. At this time he had not yet developed a sound design for his research. The research was simply driven by curiosity. What is actually going on in a lesson? He also worked from the assumption that one needs to observe experienced teachers to spot good teaching.

First Findings

- Surface
- Analyse

His initial results show at the surface a seemingly spontaneous interaction between teachers and students; but beneath the surface, the analysis showed set patterns of communication and predictable structures and rules for social interaction. Nuthall replicated his research in the US and Japan: the rituals were identical everywhere. The purpose of these classroom rituals was not clear it that time.



- Predictable; Ritual
- International

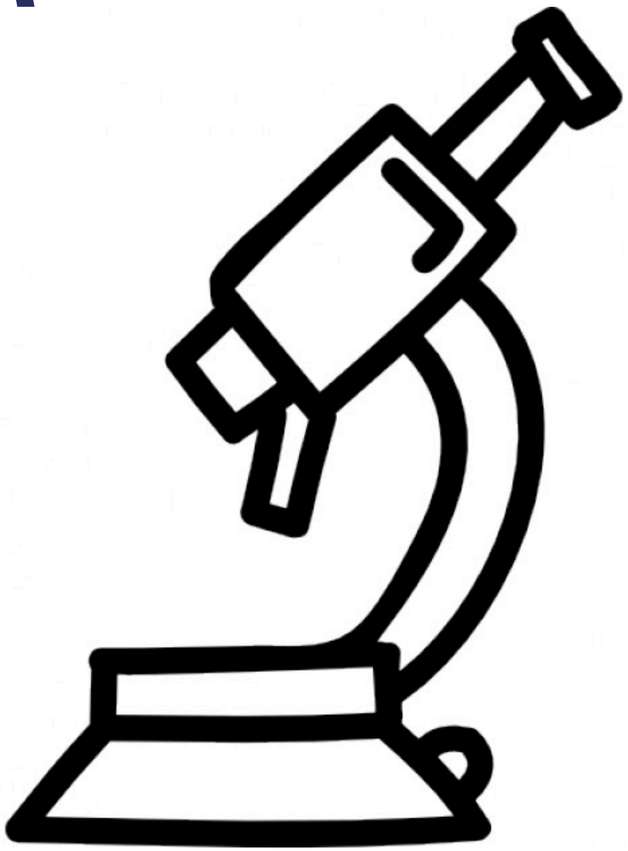
1968-1974

- How is learning influenced?
- Experimental design
- Teacher Trainee’s
- Experienced ‘experts’
- Not novice or expert
- Type of feedback and questioning

In the period from 1968 until 1974 Nuthall and his PhD students start to work with an experimental design. Together with a group of teachers they scripted a series of lessons about the black backed seagull. They wanted to know whether a teacher’s experience or training influences the learning of students. They analysed differences between three groups of teachers: experienced teachers; teacher trainee’s and teacher trainee’s who were trained to analyse their lessons using Nuthall’s prior research. The results were rather unexpected: experience and training made no difference: only the type of feedback the teachers gave and their style of questioning students.
In this research we see the hallmark of his work: using carefully scripted series of lessons.

1974- 198?

- Question: Effect of teaching on outcomes
- Recording (experienced) teachers and students
- Scripting: set patterns with room for spontaneous interaction



Nuthall en his PhD students thought they were on to something and continued to work with scripted lessons. They worked with experienced teachers, made recordings, did pre- and post tests; trying to find the factors that had a positive effect on learning outcomes.

Results

- Feedback
- Questioning
- Activating Students

And behold: they came up with results: the way teachers gave feedback, questioned students and activated students made a difference. Not so amazing to us, but then and there these were promising results.

Problems

- Complexity
- 100+ Follow up
- ‘do’s en don’ts
- ‘robotification’
- Dead End

One of the problems their intensive monitoring of the interactions in the classroom brought to surface was the enormously complex reality of the classroom. To supplement their findings they would have to do hundreds of intensive follow-up studies which would most likely produce an endless, useless list of do’s and don’ts. It could lead to a ‘robotification’ of the teacher; while their own research had shown them, that this is impossible. Nuthall hit a dead end; He describes this periode as ‘roaming in the desert’.

1978-1984

- Turning Point
- Adrienne Alton-Lee
- Student and learning
- Interaction student-course material

Then Adrienne Alton-Lee, an experienced teacher started working on a PhD. Her research question focussed on the students. What causes a student to learn the course material. In her classroom practice she was unable to predict in which case a given student would have learned the material and when not.

Three Students

- Disseminating Course Material
- Concept, items
- Crawl into the skin of students
- Registration interaction between student and material
- Photo’s of work, materials.

Adrienne disseminated the course material to the bone in concepts and items, using a rolodex system. A simple series of lessons on climate could contain as much as 500 items. A concept could be:
Antartica is the driest continent.
Items: there is little dissipation; There is more in the Sahara; because of the low temperatures the snow never melts.
Every 15 seconds all communication of a student and every action was registered:
What he did, said to himself and to others. All the material a student encountered was registered and everything a student made or wrote was photographed.

This led to a dissertation that was published in a leading magazine.

Replication 1984-1990

- Advanced equipment
- More details
- Loads of information

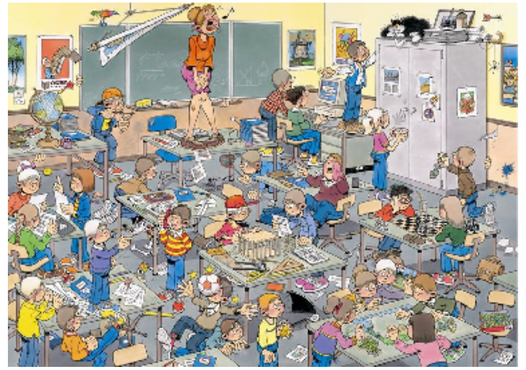
Because Adrienne had followed a mere three students, Nuthall decided he needed replicate her findings. He designed 3 follow-up studies in order to replicate her findings. Technological advancements made it possible to gather ever more information.

Design

- Analysis Course Material
- Pre-test
- 4 students every 15 seconds
- Post-test
- 1 year later: interview and second post-test

The design was thought through thoroughly. Linking the students learning experiences, the course material and the outcomes seemed to work. They collected a mountain of information.

Social Information



- Private world (self-talk)
- Sociale world
- Sexism; Racism
- Gossip
- Planning social activities
- conflicts from the schoolyard
- Opinion peer > opinion teacher

They identified four simultaneous processes: the invisible thinking of the student, the self-talk, the social interaction between peers, mostly invisible for the teacher en the teacher led public discussion.

How well hidden the self-talk and the interaction between peers is, is illustrated by the fact that each student had an observer, who missed 40% of the talk that was on tape.
Heads up: the opinions from peers are more important and better believed than the opinions of the teacher, including those related to the course matter.

Information Learning

- 40-50% course material is known
- every student has different knowledge
- 30% learned is unique to 1 student
- 3 à 4 students learn the same
- Knowledge is shared

They also found a lot on learning:
When you start a lesson, half of what you are about to teach is already known, although every student holds a different piece of the puzzle. Almost every student learns something different in your lesson and they learn more from each other than from you; including misconceptions.

Function Rituals

- Focus on the whole room
- Students respond according to rituals
- Impossible to track individual students

The intrinsic chaos of the classroom clarifies the function of the rituals that Nuthall found in his first study. The rituals allow the teacher to focus on the class as a whole; he doesn't have the resources to follow individual students. Part of the ritual is the nodding and smiling of the students who draw the attention of the teacher. Students also make sure to appear to focus on their work whenever the teacher is in their vicinity. Appearance is the key word here.

Confusion

No reliable information on how students learn

months of that study leave, I did nothing else but analyse that data. I used everything I knew about formal and informal data analysis, producing endless computer printouts and pads full of notes. But gradually it dawned on me that for all the richness of the data we had obtained, the old problem still remained. Adrienne's PhD results did not reappear, and each of the new studies produced what looked like different results. The relationships between teacher and student behaviours, activity structures, resources and student achievement seemed unique to each study.

They now had 4 intensive studies without a single pattern in the outcomes.

1990-1995: Eureka

- One student: John
- One topic

Ultimately Nuthall decided to precisely map out the learning proces of one student in relation to one topic. This was a remarkable choice; you would expect a researcher to scale up the numbers in order to find a pattern. He analysed the interaction of John in regards to the topic of the migration to New York. And then the some light broke through.

Insight

- Learning: A Positive change
- A sequence of learning experiences
- Different sequence: different outcomes
- Understanding and making sense
- 3 Times

His analysis of John’s learning experience made it possible to define learning as a positive change of what we know or can; it takes place by means of a sequence of events and learning experiences; each experience builds on the previous one and each change in the order will lead to a different outcome. The learning activities of a student consist of understanding and making sense of the learning experiences. A student understands, learns and remembers a concept if he has encountered all the necessary information underpinning that concept 3 times.

Predicting!

- Which Student Learns What
- 80 tot 85% certainty

They built on this insight and did one replication study after another with ever more students, classes and topics. And they could predict which student would answer which question on a test correctly with 85% certainty.

Final Stage: 1995-1998

- ‘Ability’
- No predictive value
- more prior knowledge; learned more
- more effective in using the school

What stands out most in Nuthall’s research is that only the ‘three times’ rule has predictive value. Ability or intelligence or similar properties did not. Yet the ‘better’ students learn more. Nuthall dedicated his last periode in research to solving this conundrum. These students had more prior knowledge and they profited more from the lessons. The secret seems to be that they take care to get more out of the lessons. They possess better metacognitive skills; they understand what it takes to get results.

Other catch

- standard testing
- cultural background
- motivation
- knowledge comes last

One of the things Nuthall found in his studies was that standardised tests offer a deceptive certainty. They were no more reliable than the interviews they held with students. In the first place they test motivation and the cultural background of the student and ability comes last. He was very critical of the value of Timms and PISA.

Nuthalls recommendations

- Repetition and Variance
- Follow the learning proces (Formative Evaluation)
- Compact Curriculum: the big questions
- Know the peer context
- Metacognition: teach Students how to learn

At the end of his life Nuthall hastily wrote ‘The Hidden Lives of Learners’ drawing conclusions for the classroom based on his research. He wants us to design learning activities that take into account how memory works. When you design your learning activities, make sure the matter is repeated in different ways; follow the individual learning experience and less is more: teachers need the time to design rich learning experiences, conduct pre-tests and get to know the social processes in the class. Learners need the time and the space to really master the content.

Sources

- The Cultural Myths and the Realities of Teaching and Learning
- The Hidden Lives of Learners
- The Graham Nuthall Trust: http://www.nuthalltrust.org.nz/