

Introduction to Living Educational Theory

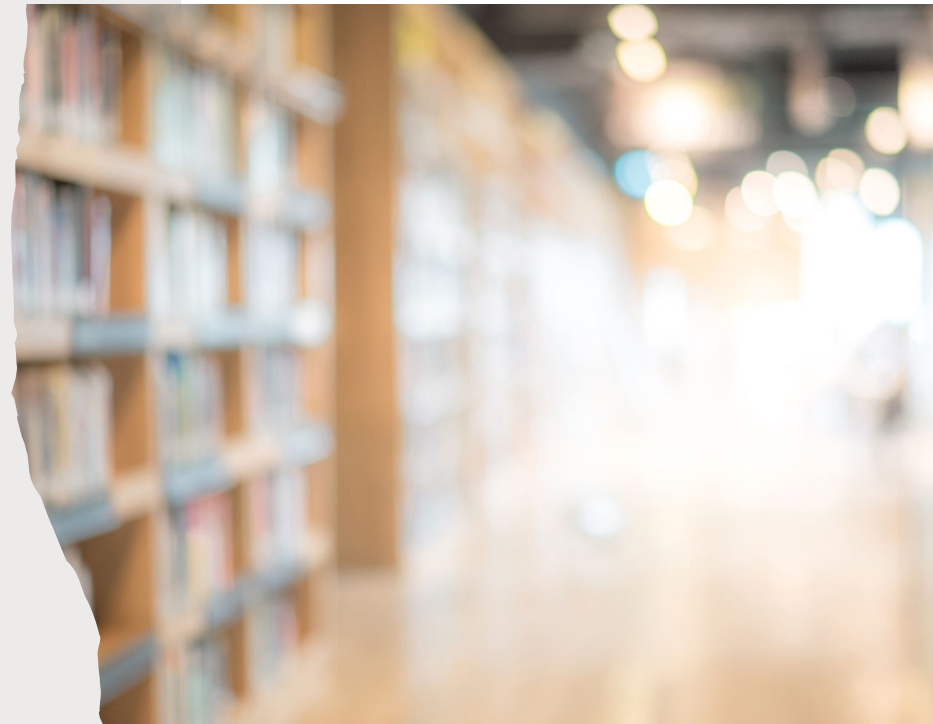
- 10am to 11am Wednesday 22nd May 2024

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Dr. Suresh Nanwani

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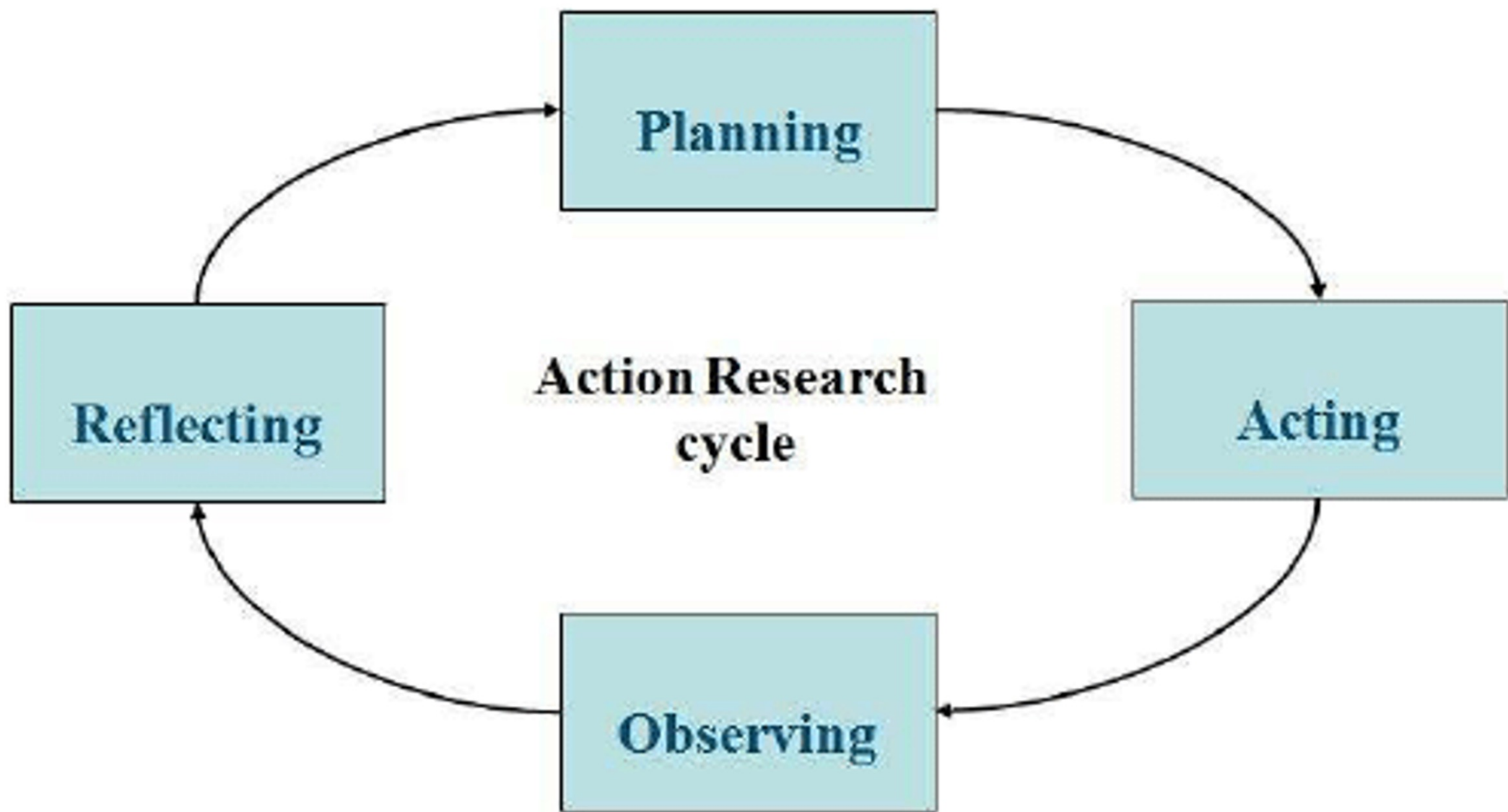




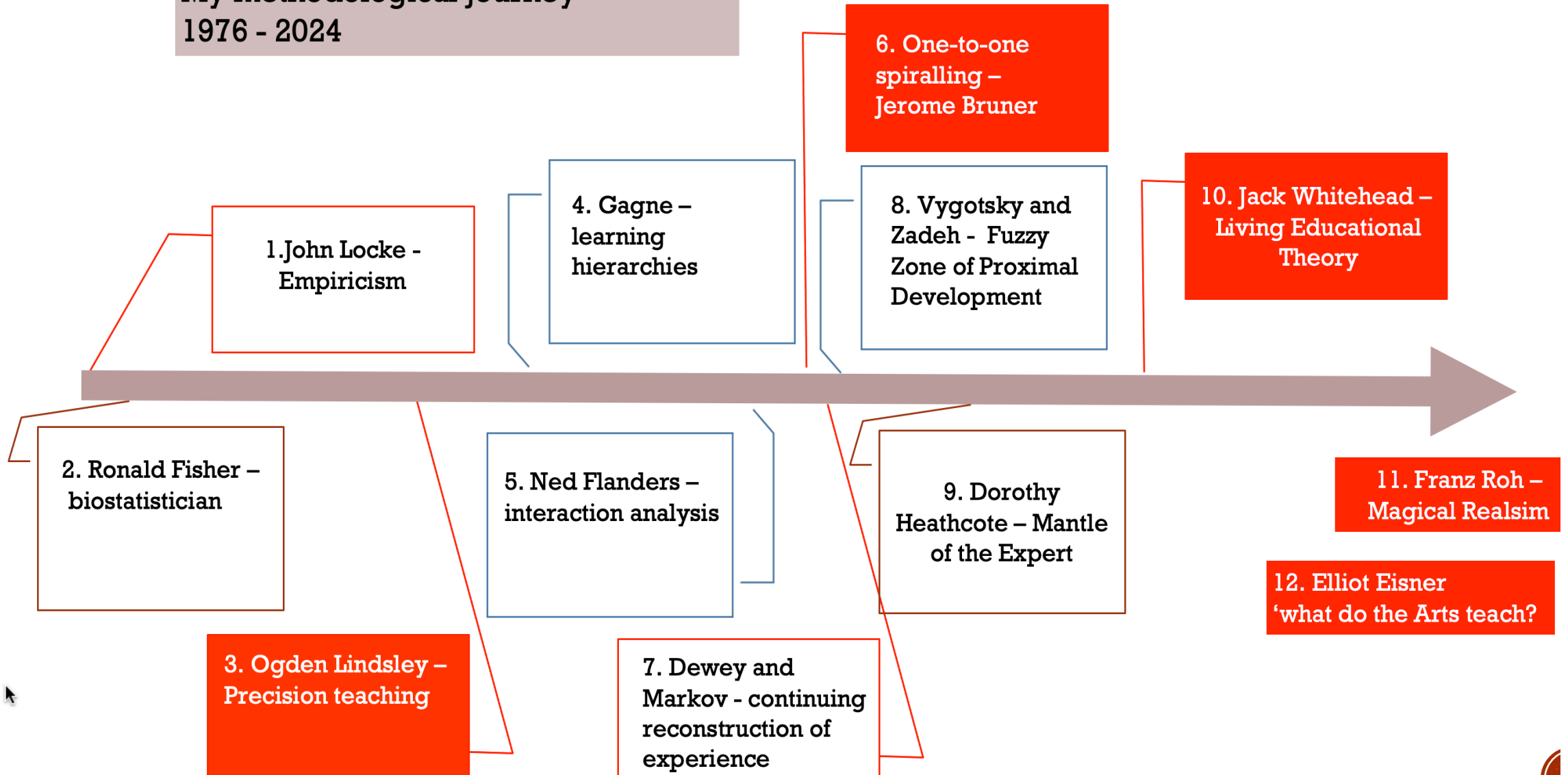
Introductions



Brian – Living Educational
Theory and its impact on me as
a researcher.



My methodological journey 1976 - 2024



Three Stages of Student Engagement in a Flipped-classroom Environment

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ABSTRACT

The literature suggests that students tend to prefer in-person lectures to video lectures. This paper identifies potential causes of this phenomenon and triggers of student engagement in a flipped-classroom environment.

Eight short in-house mathematics videos were prepared and made available to foundation engineering students on the university's virtual learning environment, prior to each topic being discussed in class. The in-house videos were viewed more than accompanying external on-line video lectures for all topics covered. Students preferred in-house videos with a voice describing a drawing as it is being drawn, not one drawn earlier, and an equation as it is being written, not one written earlier. In-house videos that were produced using high numbers of pre-prepared pages tended to be viewed less. These findings suggest a gradient of student engagement from the external on-line video lecture to the interactive group learning experience. Three evidence-based stages of student engagement are proposed: (1) external video, (2) in-house video with high numbers of pre-prepared pages and (3) in-house video with low numbers of pre-prepared pages. Further validation of these stages of student engagement, and an exploration of lecturer preparedness and social presence during the production of short in-house mathematics videos, is recommended.

Keywords

Engagement | Evidence-based | Flipped-classroom | Interactions | Learning spaces

INTRODUCTION

'What is the best use of face-to-face time with students?' is 'the one question' Bergmann and Sams (2014, pg 3). Should it be to provide instruction or facilitate learning, (Barr and Tagg, 1995)? Moving direct instruction from the group learning space to the individual learning space (Bergmann and Sams, 2014, pg 6) and students watching or listening to lessons at home and doing their 'homework' in the timetabled session (Fulton, 2012), is now termed flipped or inverted learning (Flipped Learning Network, www.flippedlearning.org). Evidence is gathering to support the hypothesis that doing this significantly improves students' learning and achievement in mathematics (Bishop and Verleger, 2013, Day and Foley, 2006, Fulton, 2012), however, many studies are based on subjective opinion survey or informal assessment (Bishop and Verleger, 2013, pg 11).

Students still 'tend to prefer in-person lectures to video lectures, but prefer interactive

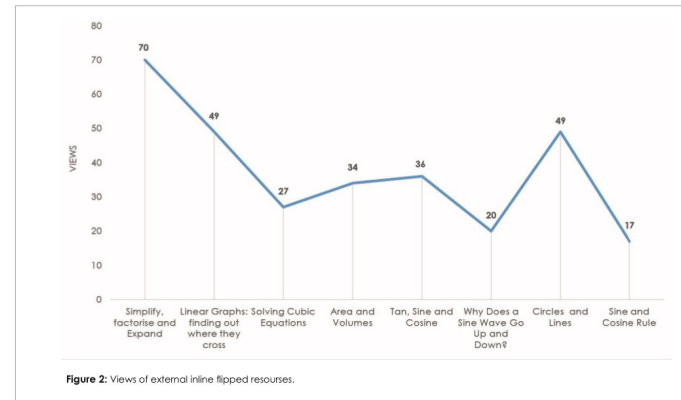


Figure 2: Views of external online flipped resources.

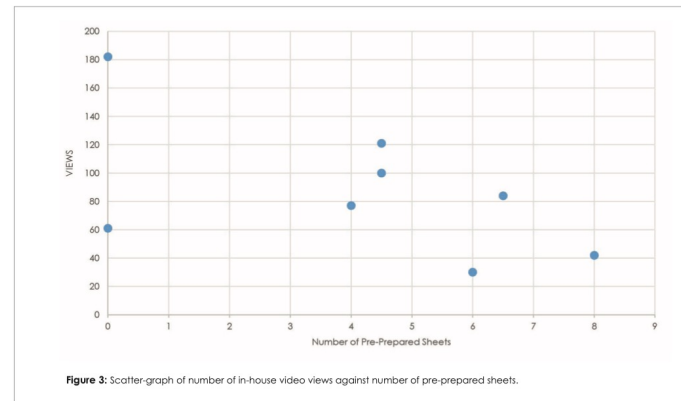


Figure 3: Scatter-graph of number of in-house video views against number of pre-prepared sheets.

were 697 and 302 for the in-house and external resources respectively.

Research Question 2: Interactive

Students were asked to rank the four features of a maths flipped classroom video (question 11): 1 = most helpful to 4 = least helpful and the total rankings for each category are shown in Table 1. The features: - voice that describes a drawing as it is being drawn, and voice that describes an equation as it is being written; were the most popular (with the lowest total rankings); suggesting that students preferred a lower level of preparedness (expression (1) above).

Table 1: Response to Question 11. Please rank these features of the videos by how they helped to you learning maths: 1 = most helpful, 4 = least helpful.

Feature of a maths flipped classroom video	Total Rankings
Voice that describes a diagram drawn	59
Voice that describe an equation written earlier	53
Voice that describes a drawing as it is being drawn	47
Voice that describes an equation as it is being written	46

Further, the number of views for each in-house video was plotted against video preparedness (Figure 3) suggesting that there is a tendency for videos with a higher level of preparedness to be viewed less.

DISCUSSION

This paper has suggested that video lectures being produced

by lecturers who are not personally known to students is a potential reason for them tending to prefer in-person lectures to video lectures. Further, a low number of pre-prepared pages in a video lecture (preparedness) has been identified as a trigger of student engagement in the flipped-classroom environment.

These findings are compatible with the fact that the external MathTutor videos were produced using no pre-prepared pages by a lecturer unknown to the foundation engineering students. The fact that the external videos were still viewed less frequently than the in-house emphasises the lecturer being personally known to the students, the 'personal touch' is the dominant factor.

The video-view comparison (Figures 1, Figure 2) suggest that external on-line flipped resources were engaged with less than short in-house videos (even those with a high level of preparedness). This statement has been interpreted as evidence to support the placing of Stage 1 before Stage 2 in Figure 4 'Three Stages of Student Engagement'. Further, the rankings in Table 1 suggest a student preference for lower levels of preparedness, and the scatterplot in Figure 3 supports this conclusion. In Figure 3 student engagement, as demonstrated through video views, tends to fall as the level of preparedness rises. In summary, these statements have been interpreted as evidence to support the placing of Stage 2 before Stage 3 in Figure 4.

The staged conceptual framework proposed here (Figure 4) represents one aspect of a student experience lived by one cohort of foundation engineering students at the University of Bolton 'favoured by an online learning environment and

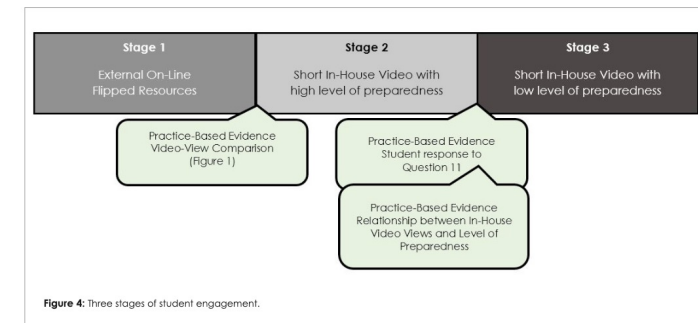


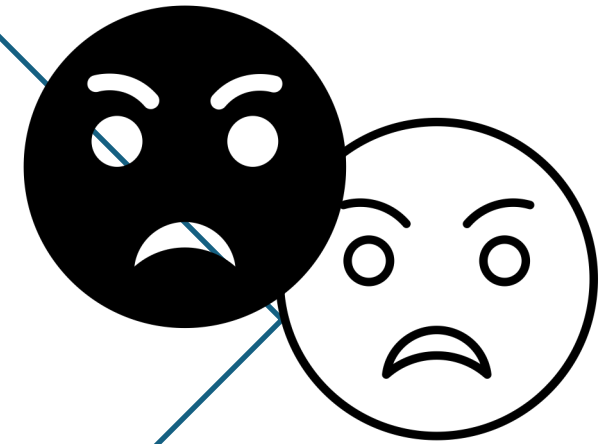
Figure 4: Three stages of student engagement.

I suggest that those designing, and applying, mathematical procedures and models may have captured their lived experiences and represented them in mathematical form

For example, the bitter disagreements between Neyman and Pearson, and Fisher on how to test hypotheses ...

... a disagreement so strong that it influenced the day to day lives of millions of students, scholars and practitioners.

Arguments
between
researchers!



Story

Story

Story

*... Why do
people
argue ?*

... because they value different things?

**YOUR
VALUES**

**YOUR
ACTIONS**

ARE YOUR ACTIONS CONTRADICTING YOUR VALUES?

YES?

Lexicon of terms

at <http://www.spangfish.com/ejots/lexicon.asp>

HOW CAN YOU IMPROVE WHAT YOU ARE DOING?

**IMAGINE WAYS TO OVERCOME
YOUR PROBLEMS**

BY DOING THIS YOU WILL HAVE MADE YOUR VERY OWN
living educational theory



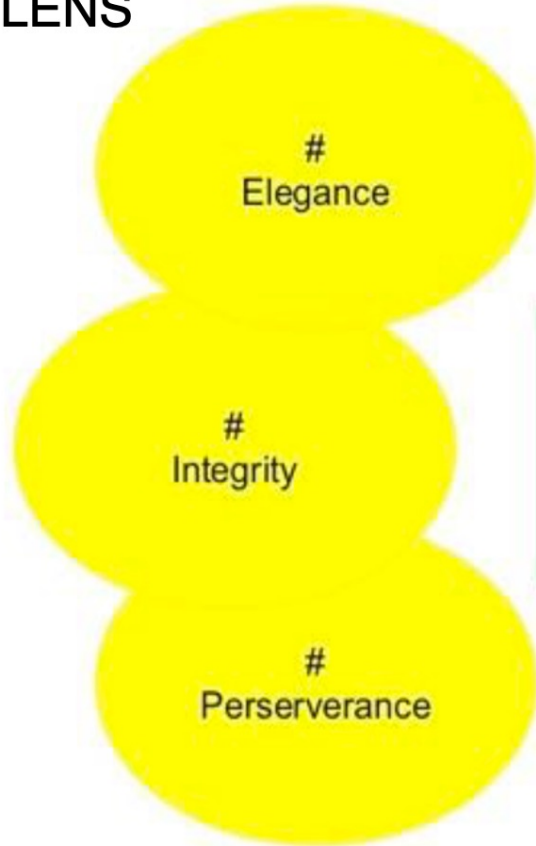
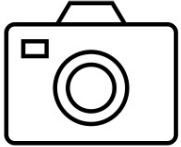
YOUR

living educational theory

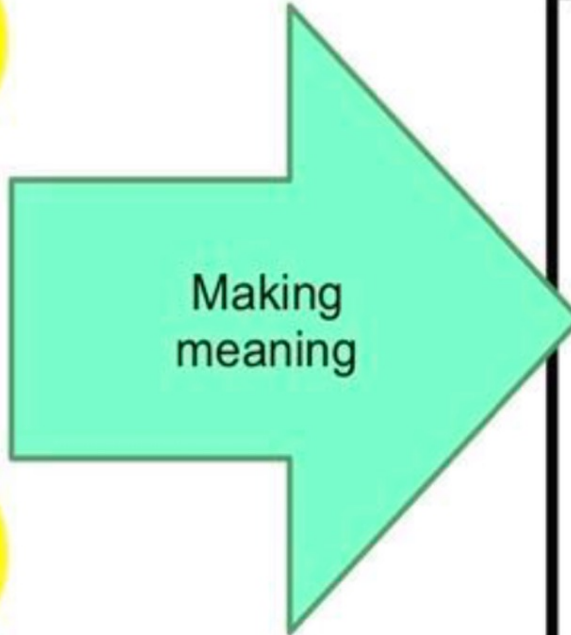
COULD BE RELATABLE TO OTHERS, SO IT COULD HELP THEM AS WELL!

I adopt the position that my living-theory may emerge from posing questions of the kind 'how do I improve my practice?'

MAKING MEANING
THROUGH A LIVING-
THEORETIC LENS



Representation of a Values-Based Approach
to the Modification of a Mathematical Model



Formulae for estimating heritability are generalised to include terms due to environmental causes of similarity between relatives.

Brian Williamson

School of Education

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A five-cycle living visual taxonomy of learning interactions

Brian Williamson

Abstract

This paper describes my development of a useful, descriptive model that one-to-one practitioners could use to analyse transcripts of their sessions, design new strategies and even test them out. Further, this work has the potential to offer a framework that students, patients, clients and colleagues could use to communicate the types of interactions they prefer.

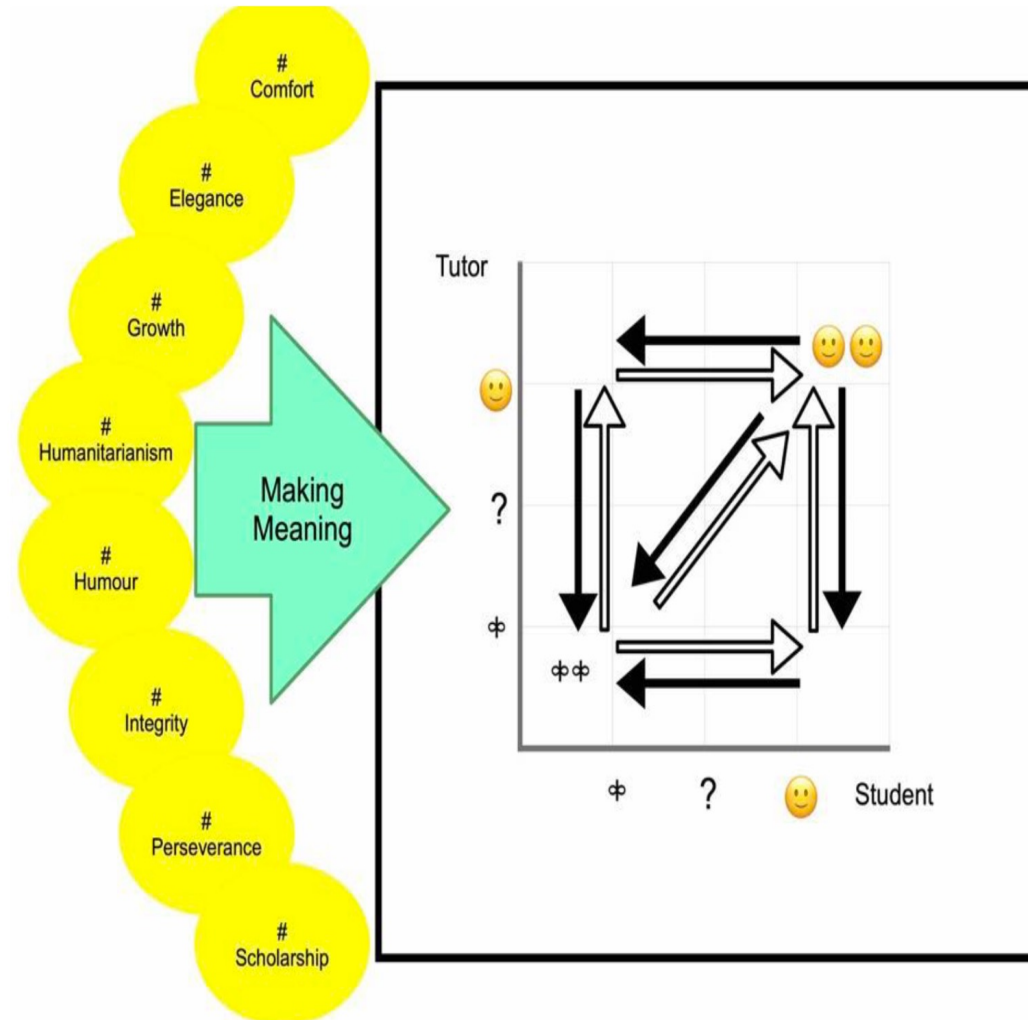
The narrative in my educational life around the domain of heuristic generates a living-educational-theory as a values-based explanation for my educational influences as a tutor. The living contradictions I encounter, and praxes I make up to help me imagine solutions, are portrayed visually and verbally; and this leads to my proposal of a five-cycle living visual taxonomy of learning interactions.

I consider the application of my living-educational-theory to other domains, for example, confidence; and to power dynamics, autism support, student engagement, expert behaviour, external influences, understanding negative feedback, and remoteness in heuristics.

Interestingly, one future possibility is to use my taxonomy to develop a 'positivist/scientific flavoured' quantitative instrument to support learning analytics and educational data-mining; to optimise learning, and the environment in which it takes place.

Keywords: Living Educational Theory; Open review; Pedagogy; Andragogy; Taxonomy; Learning cycles; Discourse analysis; Heuristic; Confidence; Locus of control; Motivation; Mantle of the expert; Power dynamics; Autism support; Student engagement; Expert behaviour; Quality of teaching and learning; Learning analytics; Educational data mining.

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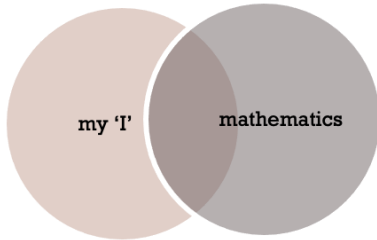


Living Mathematics

Brian Williamson

Brian Williamson

*School of Engineering,
 University of Bolton, UK*



Abstract

I define my 'living mathematics' as my living-educational-theory of teaching and researching mathematics. I define 'Living Mathematics' as the overarching values-based approach to the teaching and research of mathematics as a parallel to the distinction made between 'living-educational-theory' and 'Living Educational Theory research'. In this article I ask the question 'how do I improve my practice of teaching and researching here?' by exploring how I:

- (1) As a teacher can support mathematical thinking and the understanding of textbook concepts using a value-based approach and,
- (2) As a researcher can enhance my mathematical thinking and modify, or create, mathematical models by calling upon my lived experiences, capturing and representing them in a symbolic form.

I define teaching and research pathways in Living Mathematics as sequences of useful and focused key actions. Four exemplar case studies of my living mathematics are discussed; two from the teaching pathway and two from the research pathway.

MAKING MEANING THROUGH A LIVING-THEORETIC LENS



Keywords: Mathematics Education; Living Educational Theory; Mathematical thinking; Integrative education.

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	'my I'	"not my I"
mathemaitcs	<p>World One</p> <p>'my I' AND 'mathematics'</p> <p>...the mathematics that I consider to represent my living values.</p>	<p>World Two</p> <p>'not my I' AND 'mathematics'</p> <p>.... the mathematics that does not represent my living values ... or could it?</p>
not mathematics	<p>World Three</p> <p>'my I' AND 'not mathematics'</p> <p>... part of my I that cannot be represented by mathematics ... or could it?</p>	<p>World Four</p> <p>'not my I' AND 'not mathematics'</p> <p>...niether present day mathematics not my I. I believe that there is still more but it is hidden.</p>

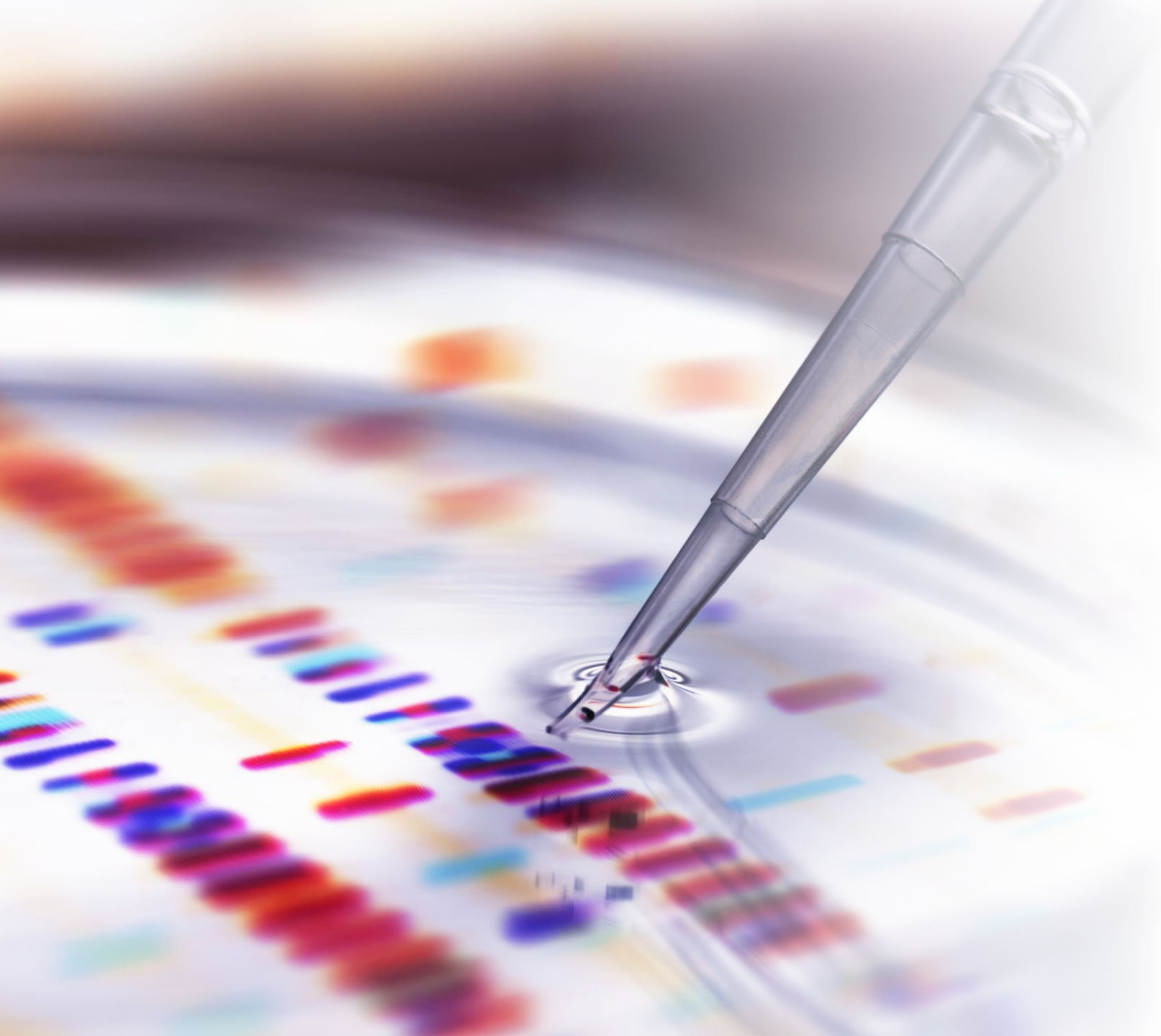


**MAGICAL
REALISM**

imagining ways to overcome your problems



Any
Questions?



Suresh – my
research
background and
how it connects to
values and Living
Educational Theory

Dr. Suresh Nanwani

Professor in Practice, Durham University, School of Government and International Affairs,
UK at <https://www.durham.ac.uk/staff/suresh-nanwani>

Member Practitioners' Board, Global Policy UK at
<https://www.globalpolicyjournal.com/practitioners-advisory-board/suresh-nanwani#profile>

ORCID <https://orcid.org/0000-0003-0985-5526>

Organization and Education Development: Reflecting and Transforming in a Self-Discovery
Journey (S. Nanwani, Routledge, 2022, Open Access) at <https://doi.org/10.4324/9781003166986>

Social Structure Adaptation to COVID-19: Impact on Humanity (eds. S. Nanwani and W. Loxley),
Routledge, 2024, Open Access at <https://doi.org/10.4324/9781032690278>

Human Connections: Teaching Experiences in Chongqing, China and Beyond (S. Nanwani,
Amazon Kindle, 2022) at <https://www.actionresearch.net/writings/nanwani/nanwaniconnections.pdf>

- create and offer a relatable account of my **living-educational-theory methodology and research**
- a **passion for improving teaching and education**, which is the focus of my research
- my exploration of the implications of asking, researching, and answering questions such as ‘**How do I improve what I am doing in living the values of human flourishing as fully as possible?**’
- Although I’ve felt lonely before, that was only a state of mind: I had no reason to be lonely and alone on this occasion. I had to interpret my new circumstance – **being and teaching in Chongqing – with hope and positivism**
- I could bring out the best in me and make myself complete and purposeful. It was like finding the intersection of these three models – creativity, AI/AL, and ikigai – and in that intersection, I was immersed in a new light. This was the stepping stone that laid the foundation for my **Matter-Ikigai-Creativity-Appreciative Inquiry/Living (MICAI) Intersection Model**
- **my living poster**



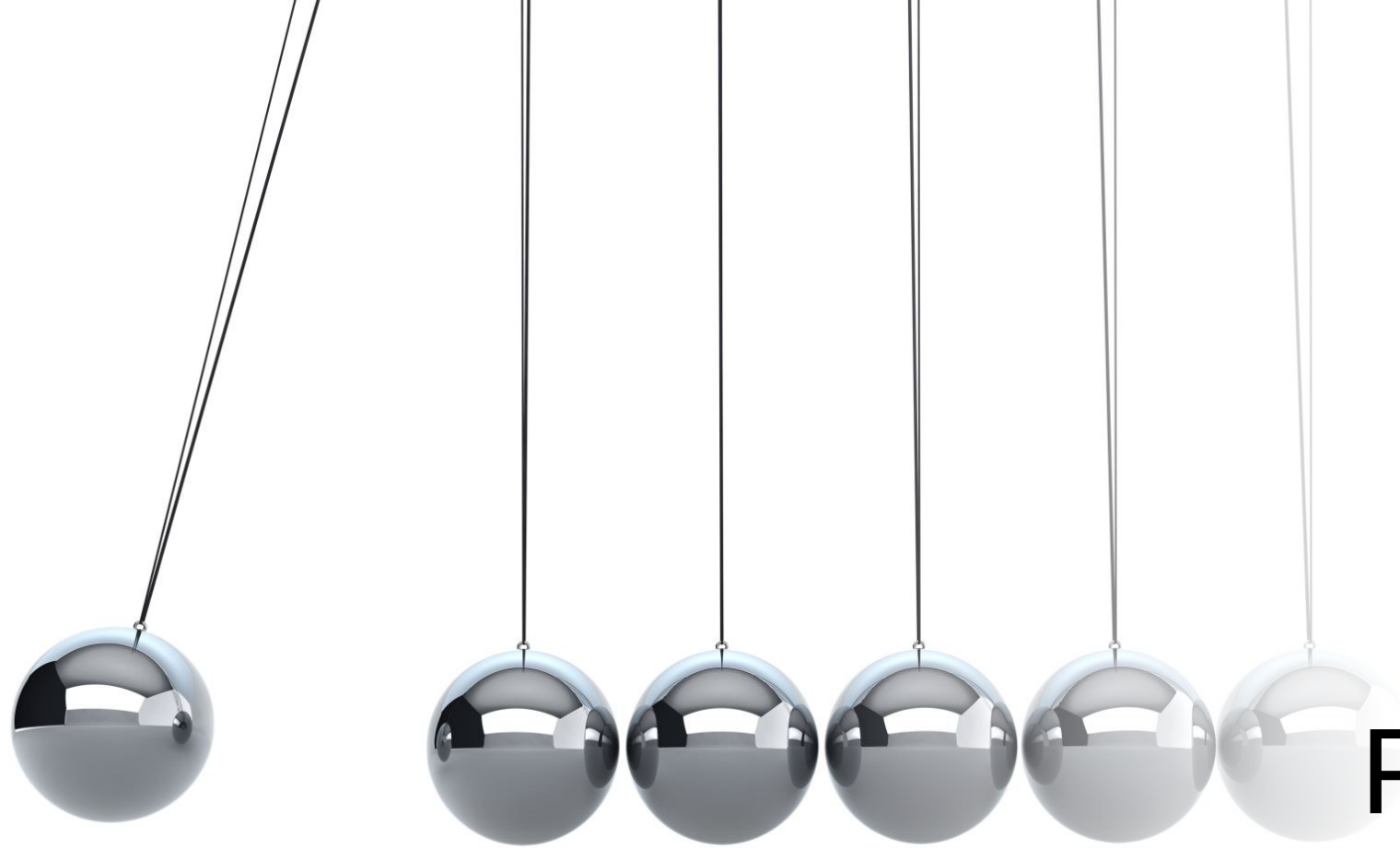
Any
Questions?



TEDx

April 2019

<https://www.youtube.com/watch?v=Jf1kFHLdiPY&authuser=0>



Plenary