# IMPERIAL

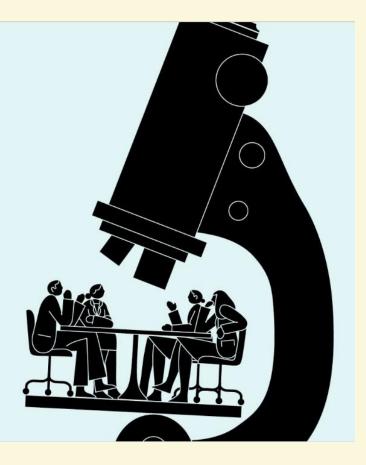
# **Building collective intelligence** An intervention to promote collaborative learning in Physics

Jon Fenton, Senior Teaching Fellow (Physics) 19/11/2024 :



New research reveals surprising truths about why some work groups thrive and others falter.

n = 180 teams



## "raising a group's collective intelligence"

#### Context

Physics cohorts: around 30% female, 50% international, significant numbers of neurodiverse students

Students in Physics describe an atmosphere of competitiveness Amy Smith – longitudinal study of social norms for 2020-entry cohort (<u>PhD thesis on Spiral</u>) "Work hard"…"appear intelligent"…"lack of knowledge of peers"

What interventions are possible to seek to promote a positive culture?

#### Upskilling

Navigating and regulating emotion Unhelpful competitiveness and negative behaviours arising as responses to difficult emotions

Skills for collaborating

#### **Session design**

"Pilot" session with the Physics Y1 cohort on Weds last week (13<sup>th</sup> Nov). Two hours in Blackett LT1 (traditional lecture theatre, 250 capacity)

As part of a series of weekly sessions throughout term 1 "extended induction"

I designed and ran this session with Kate Ippolito

Highly interactive session; around half the time students discussing in small groups (3 or 4)

Aim: Build students' emotional literacy and groupwork literacy

#### Session design "Building collective intelligence"

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Session title taken from Duhigg article – Google study on characteristics of successful teams They found successful teams shared some social norms: -conversational turn-taking -average social sensitivity

Introduction to recognising and handling emotions (Pekrun, Meyer, Gross)

Idea of "compassion" in working with others Microskills to use in groupwork

#### **Emotional awareness / literacy**

Emotions as pleasant/unpleasant, activating/deactivating (Pekrun control-value theory, 2D grid)

Possibility to reframe unpleasant emotions as useful

Denise Meyer – emotions as drive / threat / soothing

#### **Groupwork literacy – "Compassion" – Theo Gilbert**

"Compassion" as noticing distress/discomfort in self/others and taking action to address it

Resources: video to build microskills for groupwork the value of noticing non-verbal cues from others (e.g. via eye contact) strategies to disrupt monopolisers / "alpha pairs"

#### **Outcome**

This seemed to be the first time students had discussed their emotions on the cohort scale.

Contributions immediately drew out:

Descriptions of students operating at "high level" or not fixed mindset

Imposter syndrome

#### Student feedback - "Emotions are lowkey goated"

#### We asked student: most useful idea you take away?

-Building emotional awareness/regulation recognition of role of unpleasant emotions

-Increased agency in relation to shaping group dynamics and norms

-Practical tips in relation to: noticing others in the group (e.g. eye contact) helping others in the group disrupting monopolisers / alpha pairs Key to improving Google's teams – "Understanding and influencing group norms" "Norms can be unspoken or openly acknowledged, but their influence is often profound."

"The right norms could raise a group's collective intelligence."

### Two key group norms:

- conversational turn-taking
- average social sensitivity/empathy

= aspects of **psychological safety** 

"shared belief held by members of a team that the team is safe for interpersonal risk-taking."



"People would try to show authority by speaking louder or talking over each other, ...I always felt like I had to be careful not to make mistakes around them."



Gilbert, T., (nd). Compassion in Education - Embedding and Assessing Compassion in the University Curriculum, https://compassioninhe.wordpress.com.

Artino, A. & Pekrun, R. (2014). Using Control-Value Theory to Understand Achievement Emotions in Medical Education. Academic Medicine, 89 (12), 1696. https://doi.org/10.1097/ACM.000000000000536

Duhigg, C. (2016). What Google Learned From Its Quest to Build the Perfect Team. *New York Times (Online)* (article available via Factiva within Imperial library search).

Meyer, D.,(2020). Emotion Regulation for Learning on Vimeo, University of Portsmouth.