

Using Trello to Support Agile and Lean Learning with Scrum and Kanban in Teacher Professional Development

David Parsons
The Mind Lab
Auckland, New Zealand
david@themindlab.com

Rochelle Thom
The Mind Lab
Wellington, New Zealand
rochelle@themindlab.com

Kathryn MacCallum
School of Computing
Eastern Institute of Technology
Napier, New Zealand
kmaccallum@eit.ac.nz

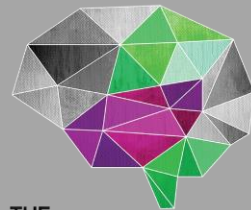
Milla Inkila
The Mind Lab
Hamilton, New Zealand
milla@themindlab.com

Abstract—Agile and lean concepts from industry are increasingly being brought into education. The most common way in which agile methods are used in the classroom is to manage student learning using an adaptation of processes such as Scrum, while the most popular adoption of lean thinking is to manage the pull and flow of learning via a Kanban board. Supporting such approaches with suitable technologies means finding a tool that can support both ways of thinking while also supporting collaboration, ubiquity and ease of use. We provide an overview of how we have used Trello to support a Kanban board for the professional development of teachers. We reflect on the

Lean thinking originated in the post-war Japanese car industry but has become increasingly popular internationally [9]. It has subsequently been applied to the development of software. Lean software development focuses on five elements: creating value for the customer, eliminating waste, optimising value streams, empowering people and continually improving [10]. These ideas have been carried over into education both in terms of institutional process improvement [11] and in ways of applying lean ideas to classroom activities [12].

A. Scrum and Kanban in Education

The two most popular ways in which agile and lean methods have been adopted in education have been 1) applying Scrum to manage learning, and 2) applying Kanban boards. Scrum is a framework for product development.



THE
MIND LAB



@millainkila

- University of Eastern Finland
 - Student
- Koskela Primary School, Helsinki, Finland
 - Primary School Teacher
- Innofactor Plc, Espoo, Finland
 - Software Trainer
 - Training Manager
 - Agile team member in Software Development, Learning Analytics
- **The Mind Lab, Auckland, New Zealand**
 - Postgraduate Director



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Research &
Community
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Practice
(RESEARCH)

Applied
Practice in
Context
(PRACTICE)



Problem

“We talk a lot in education about creating **a culture of learning** in our schools. But we don’t have reliable ways of creating this culture. Agile does.”
(Peha, 2011)

Agile project process normally takes place over a period of weeks or month > We created a **process miniature approach** to provide a **relevant agile experience**, where participants play-act a small number of iterations of the process in a very short period of time, We aim to maintain the **rhythm** and the **feedback ceremonies** (stand up meetings, retrospectives) of Scrum, so our process miniature is based on Scrum sprints with a Kanban board of user stories with **WIP limits**.



Trello Boards

Ngatea - Meaningful learning on how agile and lean approaches could help you in your practice - July 18 Intake ☆ | Ngatea July 18

AP 7

Learning backlog

Techniques

How might stand-up meetings be used, by students, during extended collaborative inquiry projects?

Processes

How can agile processes promote student agency?

Processes

How can content be 'right-sized' to the learner?

+ Add another card

Things to be learnt next

+ Add a card

Things we are learning

+ Add a card

Things we have learnt

Values

Commitment to the growth of people is how teachers must treat each student as an individual. Each student has their own strengths and weaknesses which must be addressed.

Techniques

What can pair programming teach us

+ Add another card

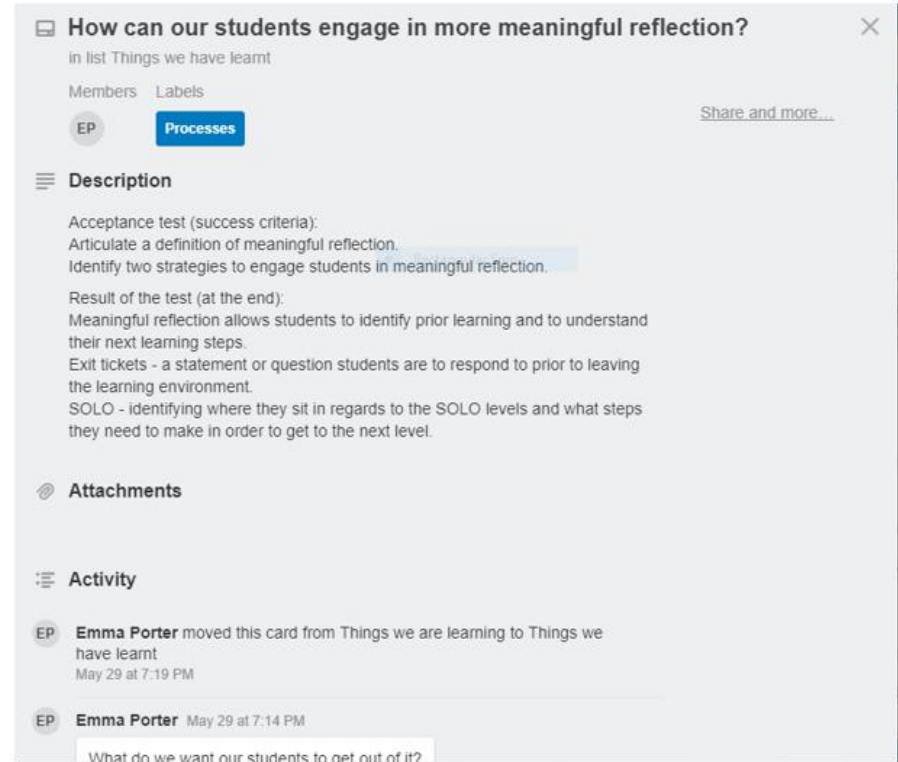
- Pull and Flow
- Three 20-30 minute sprints
- Standup meetings in between sprints
- 2 WIP limit on 'Things we are learning'



User Cards

To the "back" of the Trello User Story Card students defined their achievable and meaningful **acceptance test** (success criteria).

They also recorded the **result of the test** (at the end), so that once approved they could move it to "Things we have learned" column.



The screenshot shows a Trello card with the following content:

- Title:** How can our students engage in more meaningful reflection?
- Location:** in list Things we have learnt
- Members:** EP (Emma Porter), Processes (label)
- Description:**
 - Acceptance test (success criteria):
 - Articulate a definition of meaningful reflection.
 - Identify two strategies to engage students in meaningful reflection.
 - Result of the test (at the end):
 - Meaningful reflection allows students to identify prior learning and to understand their next learning steps.
 - Exit tickets - a statement or question students are to respond to prior to leaving the learning environment.
 - SOLO - identifying where they sit in regards to the SOLO levels and what steps they need to make in order to get to the next level.
- Attachments:** (None visible)
- Activity:**
 - EP Emma Porter moved this card from Things we are learning to Things we have learnt May 29 at 7:19 PM
 - EP Emma Porter May 29 at 7:14 PM



Meaningful Learning? (1/2)

Approaches provide **student agency**, allowing

- Students to **research, apply** and **evaluate knowledge**, and **present** outcomes
- to be **successful** rather than the push model of high stakes exams and the associated risk of failure
- to **self-regulate** their learning by prioritising
- differentiation over **choice** and **pace**, with the students being the driver rather than the passenger

Visual nature of Trello Kanban **learning backlog**

- helps students maintaining **focus**
- provides an opportunity to **track** and **reflect** on progress of learning



Meaningful Learning? (2/2)

Trello Kanban boards for **Teaching staff**?

- more **efficient** level of activity by ensuring tasks are not left incomplete
- creates a sense of **accountability** for a group and improve **communication**
- **collaboration** would be evident, visible to learners and other stakeholders

Standup meetings for **Teaching staff**?

- would help to **prioritise**, more **productive use of time** and more effective and goals focused
- **goals** are established and decisions made within **self-managing teams**



3rd Sprint > Focus on Leadership

When the participants were given the opportunity, in the final sprint, to create their own story cards around **agile and servant leadership**, the scaffolding provided in the earlier sprints helped them to **effectively** write story cards and acceptance tests.

“How can we demonstrate the characteristic of ‘Valuing people’ within our team?” Acceptance test: “all team members have contributed and justified a way that we can show this characteristic.”



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Kia ora!
Kiitos!
Thank you!

@millainkila

