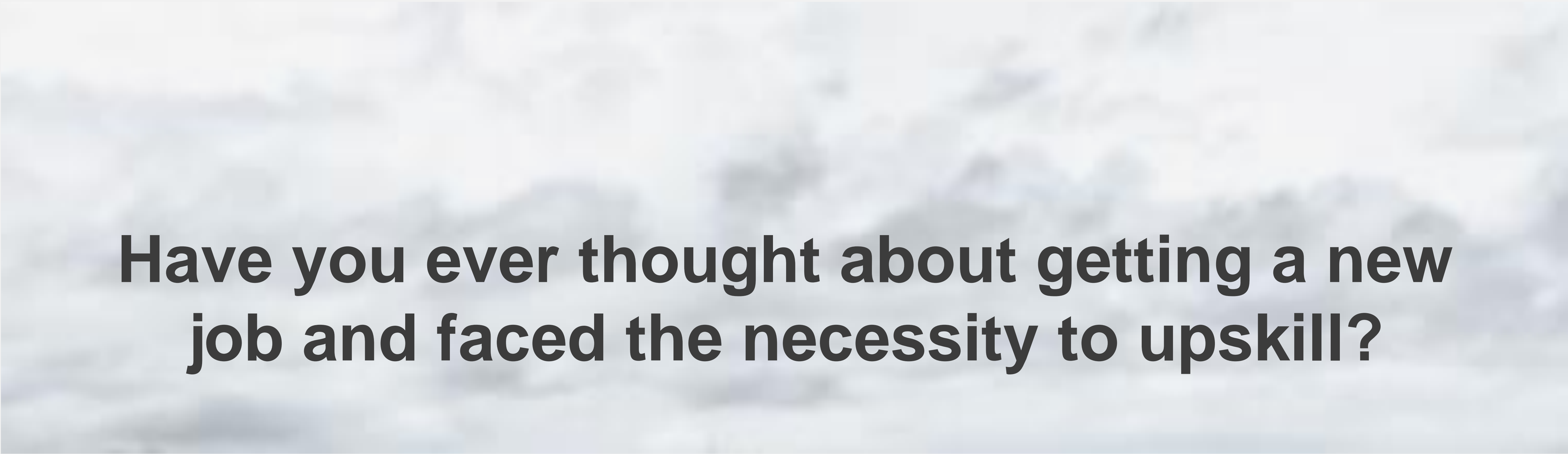


Agility Driven Learning for Educational Organizations

Presented by: Elena Pesotskaya, Angelina Strashnova

Authors:

Sergey Avdoshin (savgdoshin@hse.ru),
Elena Pesotskaya (epesotskaya@hse.ru),
Kuruppuge Divani (dkuruppuge_1@edu.hse.ru)
Angelina Strashnova (aastrashnova_1@edu.hse.ru)



Have you ever thought about getting a new job and faced the necessity to upskill?



Did you have a clear vision on what educational course to choose?

What is the problem statement?



New technologies are reshaping the future of work. **Employers** will seek out candidates that can continuously learn new skills. The **majority of professionals** are not fully confident that they have all the skills needed to manage their career development. **Specific knowledge will need to be continuously updated.**



The educational and learning system must adapt to the automation and digitalization challenges that influence business and jobs demanding new skills and competencies



Students need flexibility to choose their own learning paths based on their skills. **Agility in education will help people to adapt to change and seek out better career opportunities.**

The Goal of the Research

To understand how agility can be **introduced to educational organizations** and propose a high-level approach on how to use an **individual educational track** to assist a person's growth in their changing career



The Analysis of Key Stakeholders & the Needs



University and Students:

“We want to consider the time scale of obtaining **relevant knowledge**, its quality and relevance in the employment market”



Postgraduates and Employee's:

“We are experiencing a **skill shortage**, noticing a trend towards online education and **retraining** and want to bridge this gap”



Companies/employers perspective:

*“It is more convenient to **reskill the current employees** instead of hiring new ones”*

Why Agility framework?

87% of executives said they are experiencing a skill shortage, noticing a trend towards online education and retraining

More than 900 MOOC Platforms available

More than 40% of graduates need to upskill themselves individually to get a good job

*Adapting the existing educational tracks **to each student's needs**, thereby increasing the **effectiveness of online learning**.*

Main tasks of the Educational Agility framework

1. Identifying patterns in changing user behavior

2. Adaptation of the educational path to the needs of the student (end user)

3. Regulation and retention of student motivation

4. Furthermore, it is pivotal that the student has the necessary and most suitable content

The goal: adapting the existing educational tracks to each student's needs, thereby increasing the effectiveness of online learning

Framework Flow Chart

1) Build a skill-driven educational graph

2) Analysis of users' behavior on the platform

3) Test skills & identify the learning method

4) Improve the motivation

Preparing an educational track

Validate educational materials for compliance with the target skills and ensure the logic of the top training track using a competence map

Analyzing critical factors

Obtain a classifier of students to the behavior on each educational track module and the most correlated features with the behavior

Testing & customization

Test for the existing skills to predict the subsequent behavior and to identify the most effective learning method

Training & adaptation

Scan the students' motivation metrics and apply measures to improve outflow time and execution time on the educational platform

Design methodology

1

Expert judgement

validation of the educational content



2

Methodical processing

learning logic

3

Graph theory

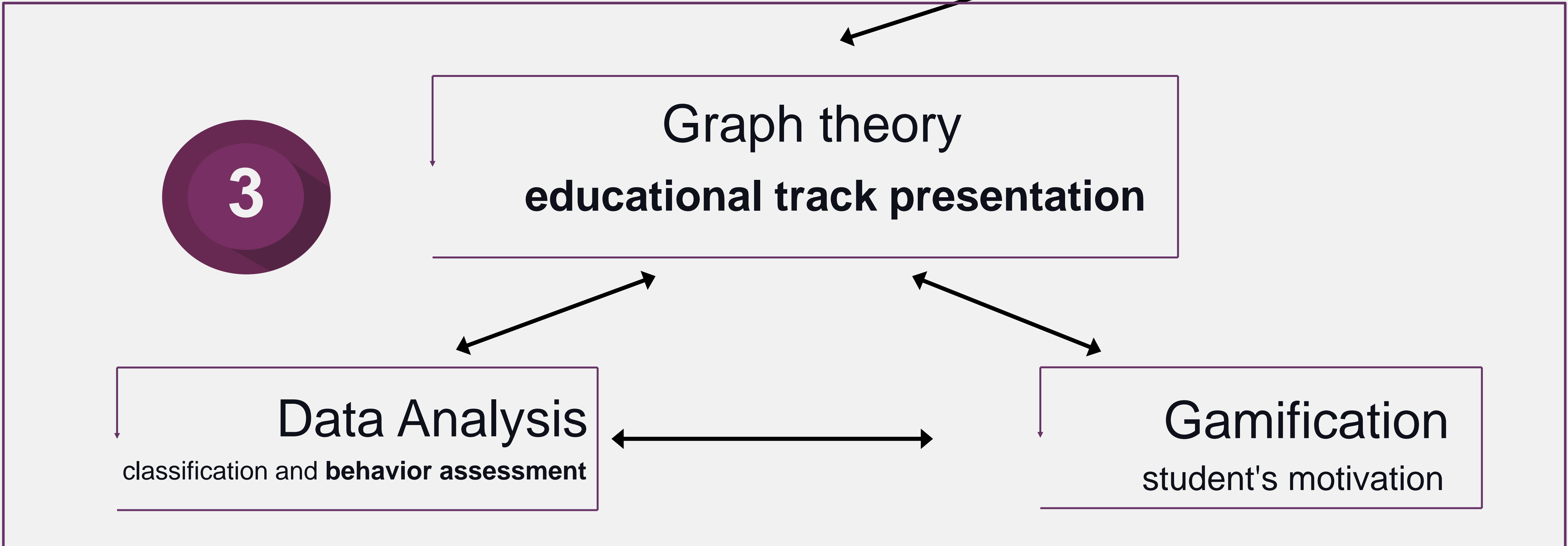
educational track presentation

Data Analysis

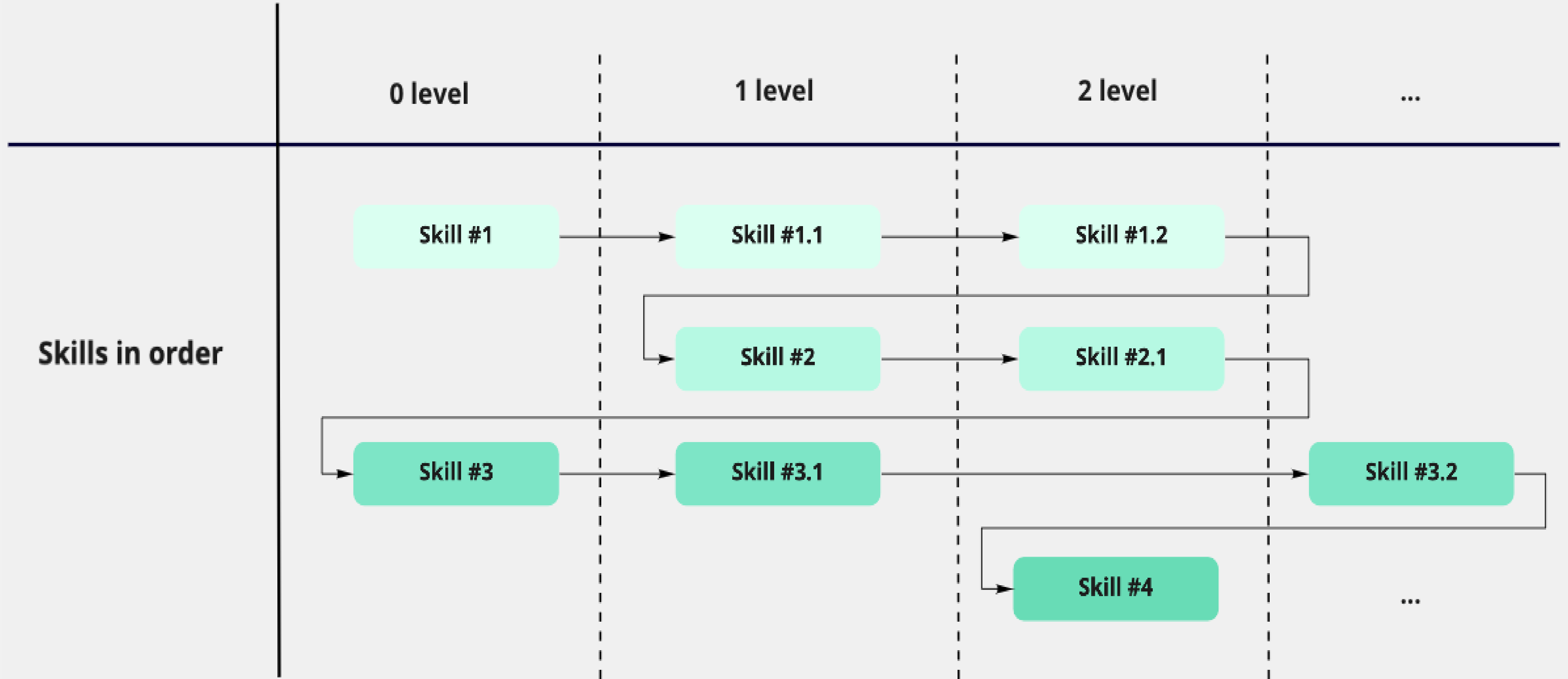
classification and **behavior assessment**

Gamification

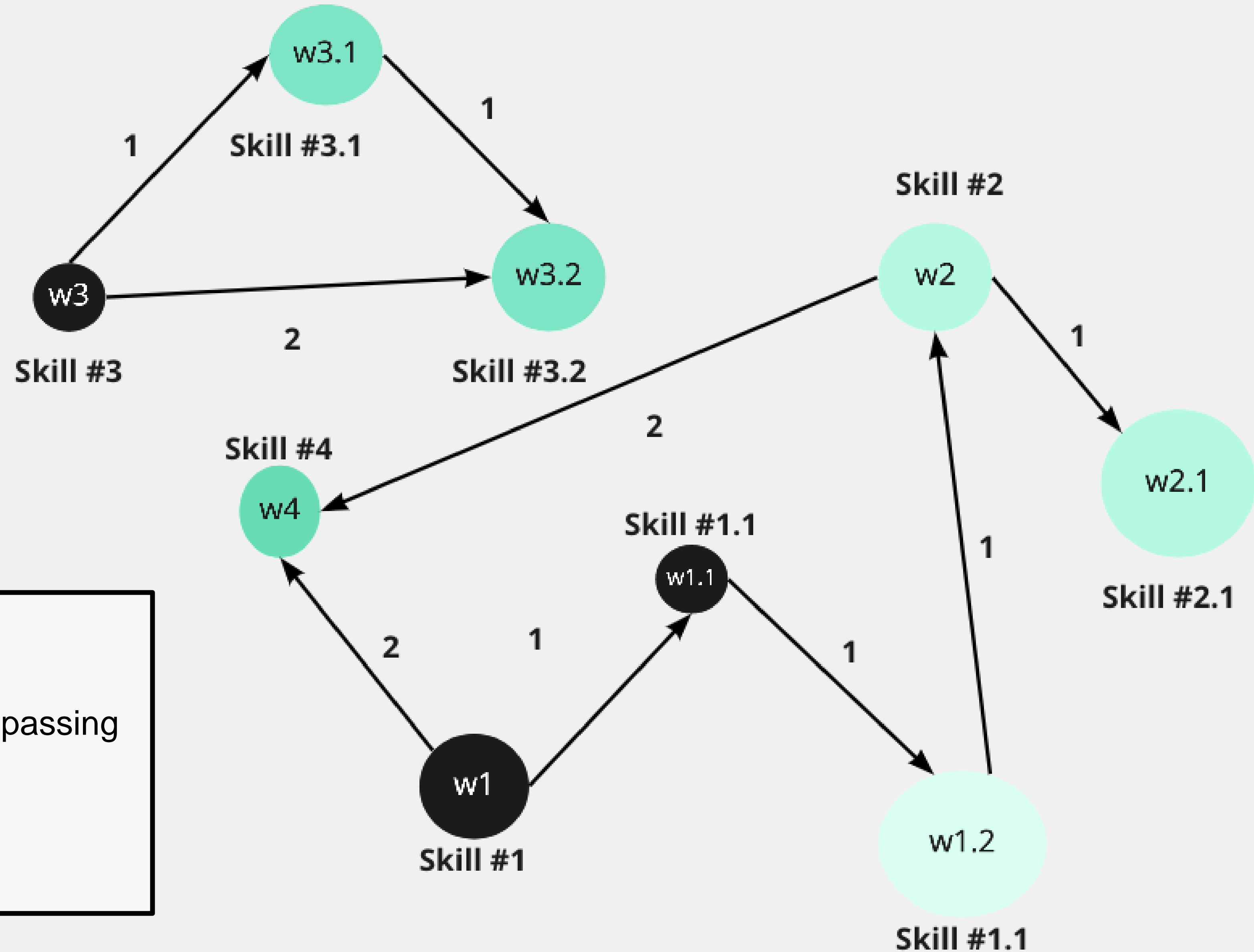
student's motivation



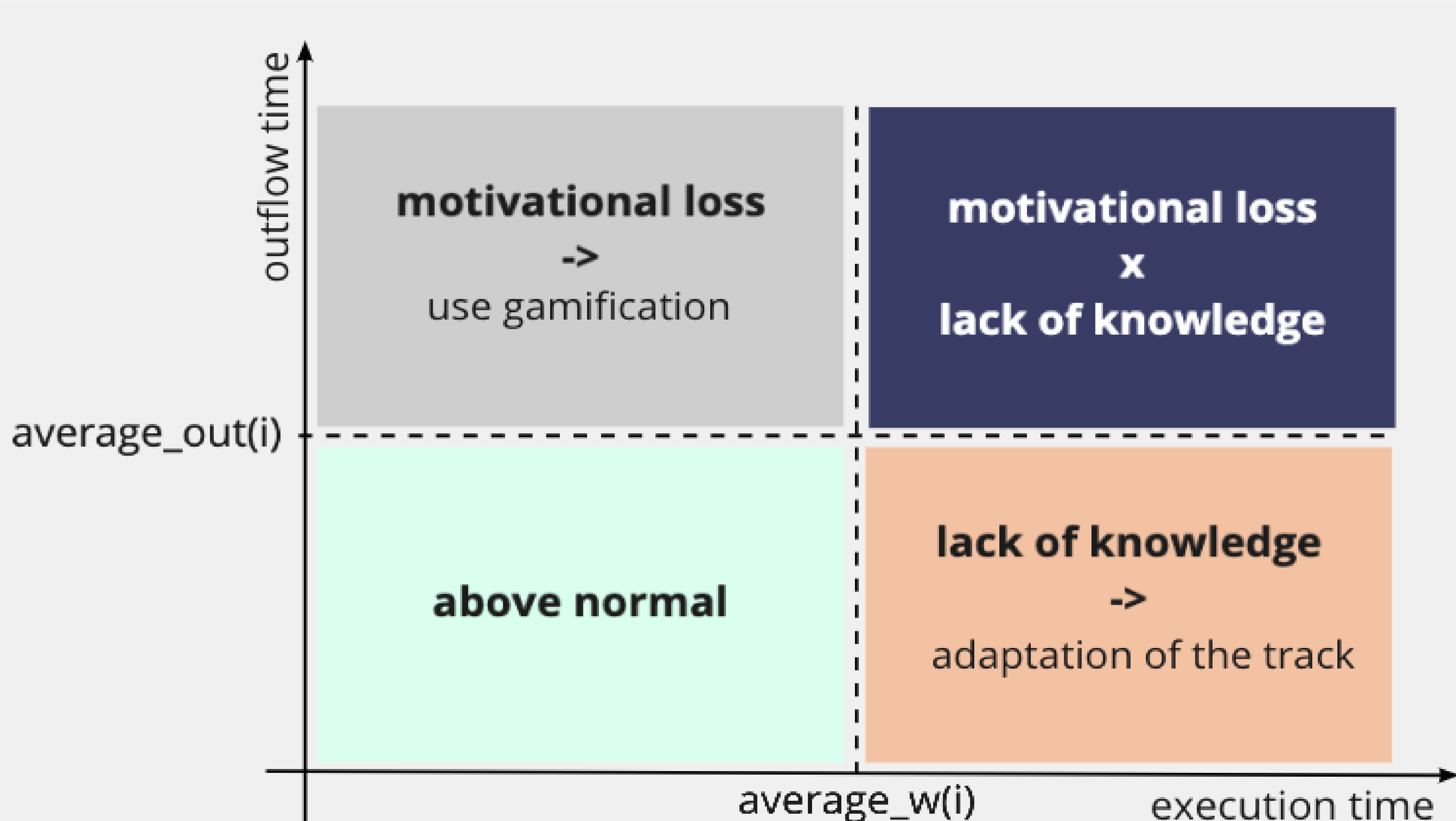
Traditional educational path



Skill-driven educational graph



Scanning of students' motivation metrics



Key metrics for the student behavior analysis

Metric	Definition	Formula
Execution speed	<p>The average module execution time</p> <p><u>For the user</u>: the total time of the student's presence on the educational platform from the beginning of the module to its completion (does not include outflow time).</p>	$E(T_{ex}) = \frac{\sum_{i=0}^k t_i n_i}{N}$
Outflow time	<p>The average time of absence of the user on the educational product</p> <p><u>For the user</u>: the total time of absence from the platform after the module execution and until its completion.</p>	$E(T_{out}) = \frac{\sum_{i=0}^k n_i (E(T_{ex}) - t_{on}(i))}{N}$

Limitations

PRODUCT FIT

1. The framework implies the possibility of **non-linear learning** and **asynchronous input**.
2. When clustering or classification is applied, the method **requires a «product history»**.
3. **The more versatile skills, the higher the effectiveness** of the method.

TESTING

1. **Initial A/B testing** on one existing product. The *aim is to evaluate the effectiveness of the application of the learning logic's application*.
2. **Testing on several various educational products**. The *aim is to check the effectiveness of the methodology in the product development*
3. **Testing mechanics in various fields or paradigms** of online education. The *aim of this testing is primarily to test the scalability of this hypothesis*.

Conclusion

Model-driven Educational Agility Framework forms a high-quality personal educational track, and supports motivation for learning



Determine the main patterns of student performance and behavior within the educational course throughout the entire learning path



Optimize the process of adaptation of the student's educational track, taking into account his needs, existing characteristics and classifying behavior



Control the level of student motivation and increase the effectiveness of student learning by providing the tailored education materials



Thank you!
Q & A

Angelina Strashnova

Divani Kuruppuge

Elena Pesotskaya

Sergey Avdoshin