

Motivation of the work

21st century learning [1].

Who is a 21st Century Learner?

How do they Learn?



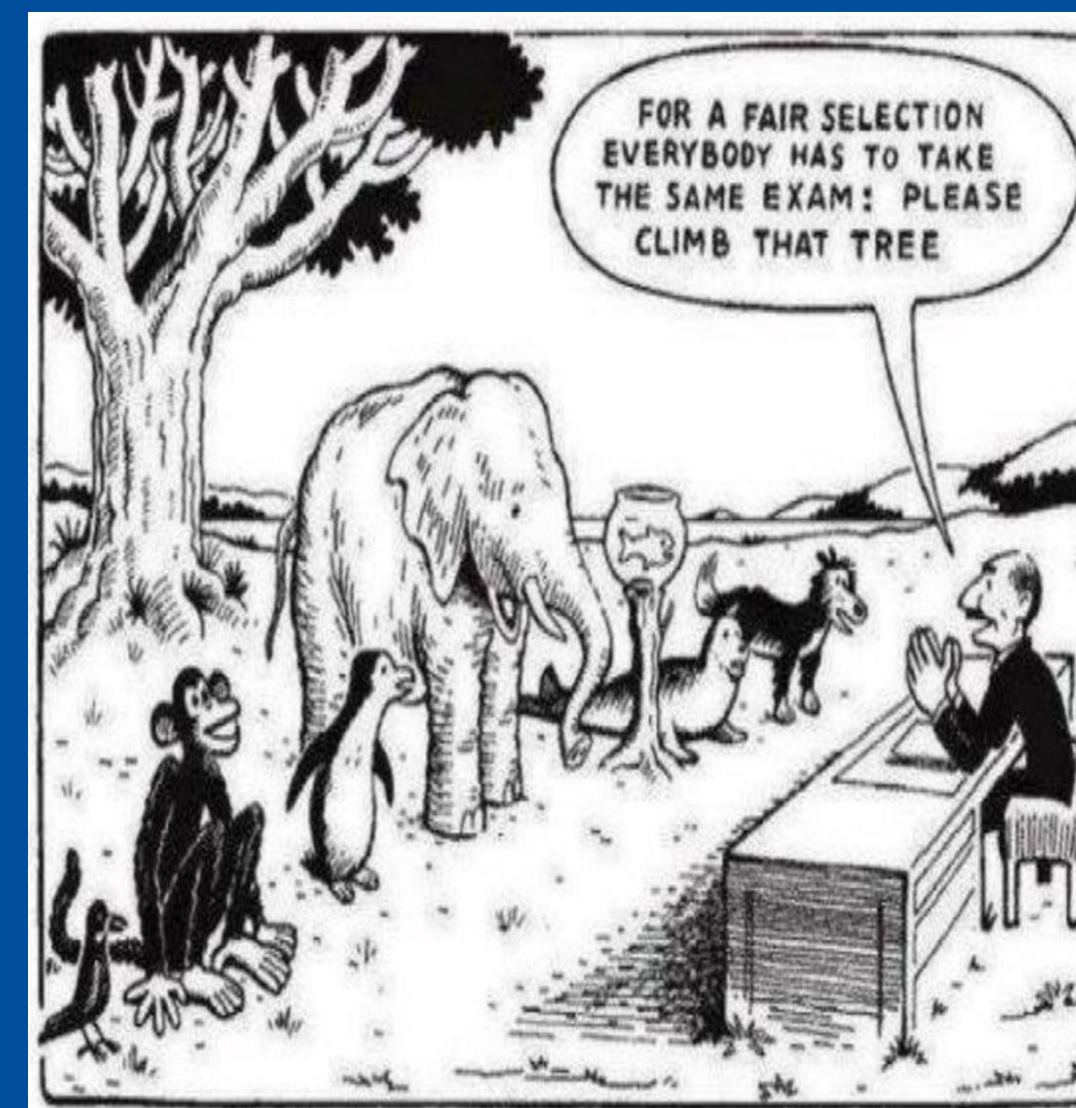
What do they need?

What do we need to do to support them?

E-learning systems powered by SMAC technology.



The traditional "one-size-fits-all" learning model, in which the same learning resources are provided to all students in e-learning system.



Our Education System

The Variety of typological and learning style models for adaptation[2].

Allinson & Hayes Cognitive Style Index	CSI
Apter's Motivational Style Profile	MSP
Dunn & Dunn's Model And Instruments	-
Felder And Silverman's Learning Style	ILS
Visual Aural Reading And Kinesthetic	VARK
Gardner's Multiple Intelligences	-
Gregorc's Styles Delineator	GSD
Honey & Mumford's Learning Styles	LSQ
Jackson's Learning Style Profiler	LSP
Kolb's Learning Style Inventory	LSI
Myers-Briggs Type Indicator	MBTI
Riding's Cognitive Styles Analysis	CSA
Sternberg's Thinking Styles Inventory	TSI
Vermunt's Inventory Of Learning Styles	ILS

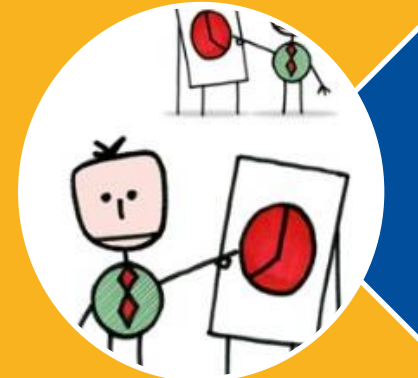
Thesis Objectives



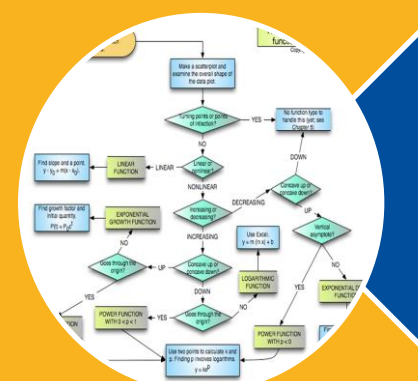
comprehensive review of the learner behaviors and activities on the learning management system, and how these behaviors and activities affect the learning process[2].



survey about various models intended to measure the learner personality type, preference and learning styles available and how they are implemented in the e-learning system [3].



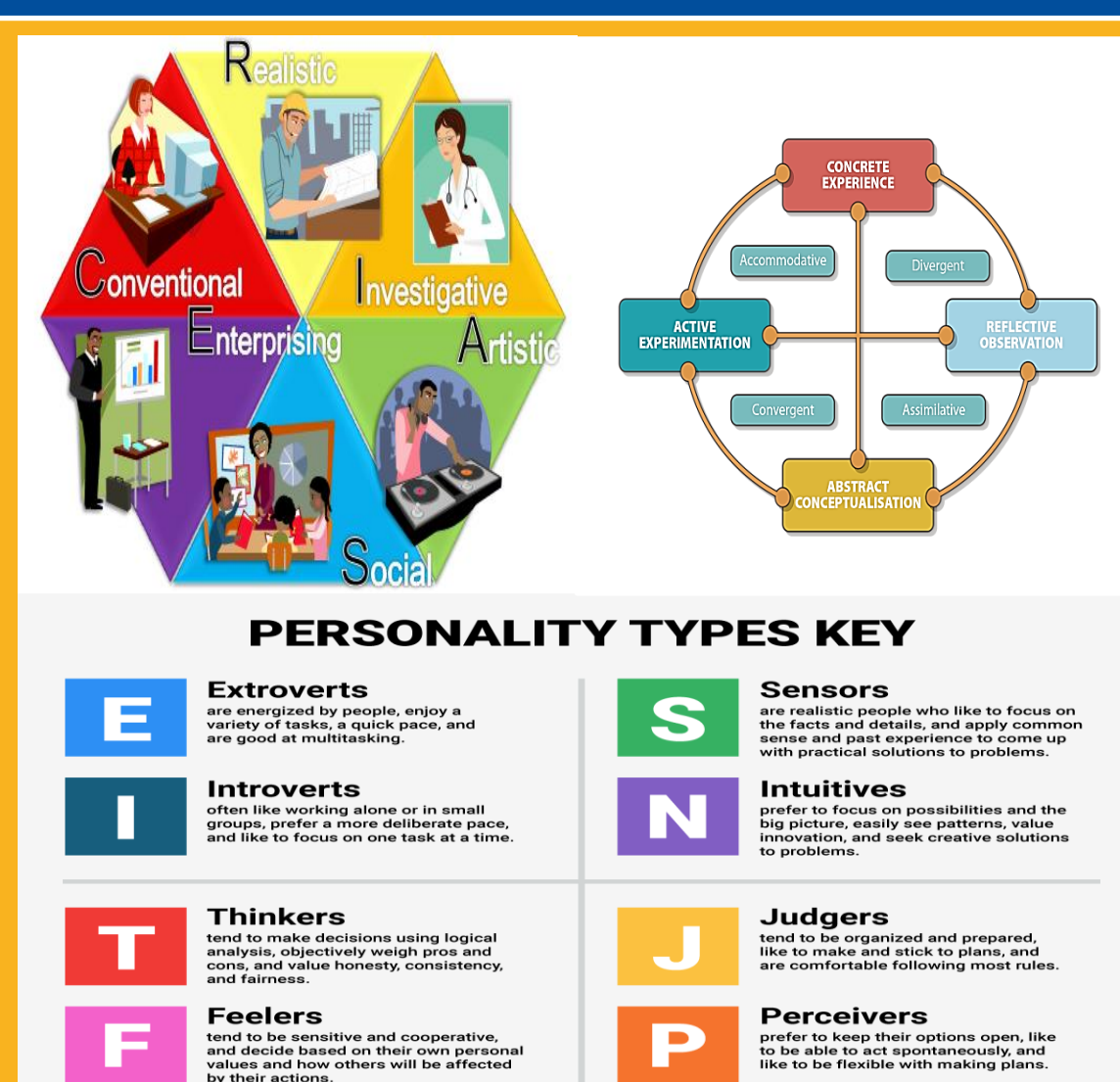
Applying learning analytics on some educational datasets that will enable a better understanding of students' behaviors and identify the relationships between learner's behaviors generally involves identifying patterns, categories, etc [4].



propose an adaptive learning model which takes the learner's differences into account.



experimental the proposed model by applying it on a sample students on an ongoing course at the university of Vigo and analyze its result.



Research Plan

- 2016-2017**
 - State-of-the-art analysis, assess the different proposals and approaches in the specialized literature to face similar technical problems.
 - Collect the datasets of the learner's behaviors from on LMS and Applying some learning analytics on these datasets.
- 2017-2018**
 - Propose an adaptive learning model which takes the learners differences into account for adaptations.
- 2018-2019**
 - Proposed adaptive learning model experiments.
- 2018-2019**
 - Preparing the documents required for the PhD defense, according to the time and manner established by the Academic Committee of the Doctoral Program.

Next Year Planning

State of the art review

2016 ● 2017

2017 ● 2018

Applying learning analytics on some educational datasets

References

- [1] J. Holbrook, "21st Century Skills and Science Learning Environments," Science Education, Springer, 2017, pp. 385-401.
- [2] S. Fatahi, H. Moradi, and L. Kashani-Vahid. "A survey of personality and learning styles models applied in virtual environments with emphasis on e-learning environments." Artificial Intelligence Review, 2016, pp4. 13-429.
- [3] M. S. Halawa, E. M. R. Hamed and M. E. Shehab, "Personalized E-learning recommendation model based on psychological type and learning style models," 2015 IEEE Seventh International Conference on Intelligent Computing and Information Systems (ICICIS), Cairo, 2015, pp. 578-584.
- [4] M. S. Halawa, M. E. Shehab and E. M. R. Hamed, "Predicting student personality based on a data-driven model from student behavior on LMS and social networks," 2015 Fifth International Conference on Digital Information Processing and Communications (ICDIPC), Sierre, 2015, pp. 294-299.