



The context: Educational Data Mining and Learning Analytics

















emerging multidisciplinary research area [1], concerned with developing methods [2] for exploring the unique types [3] of data extracted from various educational information systems [1]

```
+= data-driven decision making [1]
```

+= time, sequence, hierarchy, context [2]

^[1] T. Calders, M. Pechenizkiy: Introduction to The Special Section on Educational Data Mining, 2011

^[2] Educational Data Mining Society: Educational Data Mining, on-line, 2014

^[3] Journal of Educational Data Mining: Home, on-line, 2008



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"to make beneficial use" of large amounts of data about students available for EDM, "in order to better understand the processes of learning and the social and motivational factors surrounding learning" [4]

[4] R.S. Baker: Learning, Schooling, and Data Analytics. Handbook on Innovations in Learning for States, Districts, and Schools, Philadelphia 2013



acquisition, collection, analysis and reporting of a specific data about students and their context, in order to gain knowledge on their learning process, to parametrize it and (if possible) to optimize it.

//includes questionaires, forms, etc.



	agree	disagree
Math is too hard		
Dr Smith is rude		
I like to party		
My love has left me		
Engineering is cool		





Student

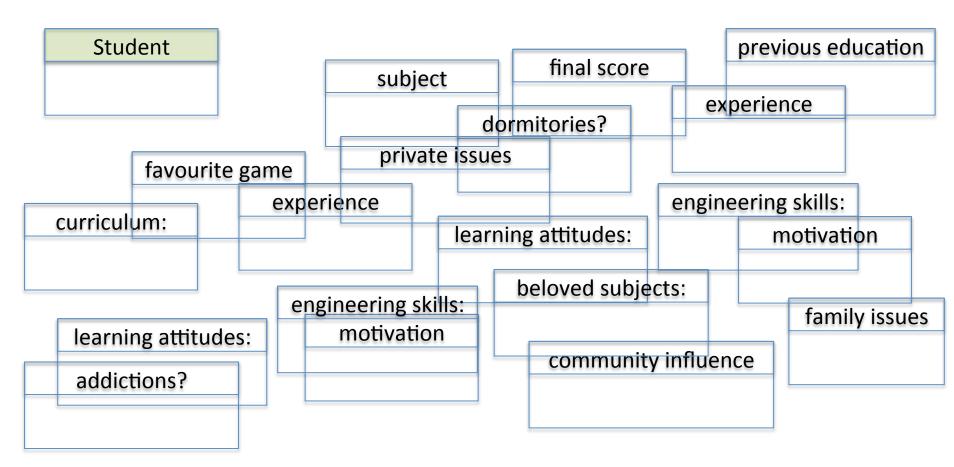
Student Profile for Enhancing Engineering Tutoring



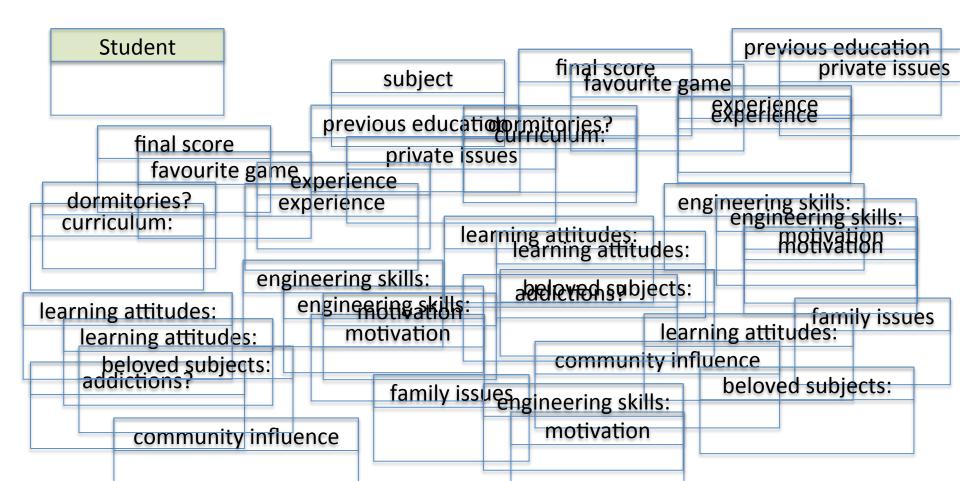
Student		subj	ject	final score	prev	vious education
curriculum:	exper	rience	learn	ning attitudes:	engineerin	g skills:
learning strates	gies:	motivat	ion	community	influence	family issues













Student Profile for Enhancing Engineering Tutoring



Attribute			UAB	LE	ON	
	Type of Variable	Available (Yes/No)	Comments	Available (Yes/No)		Availabl
Student ID	Natural Number					
Year Of Birth	Natural Number					
PlaceOfBirth Sex	Factor Factor (Female, Male)			-		
ResidenceCity	Factor					
ResidenceCityDuringStudies	Factor					
AccessToStudiesAge	Natural Number					
Nationality PreviousStudies	Factor Colonia					
PreviousStudiesCenter	Factor (SciencesSecondary, TechnologicalSecondary, LiteratureSecondary, ProfessionalStudies) Factor			1		
FatherEducationLevel	Factor (PrimaryLevel, SecondaryLevel, UniversityLevel, DoctorateLevel)					
MotherEducationLevel	Factor (PrimaryLevel, SecondaryLevel, UniversityLevel, DoctorateLevel)					
AdmissionScore	Real Number					
Degree Information						
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Attribute	Type of Variable	Available (Yes/No)		Available (Yes/No)		Availabl
Degree	Factor (Degree1, Degree2,, DegreeM)			1	,	
Institution	Factor (UAB, POLIMI, ULEON, GALATI, OPOLE, BRAGANÇA)					
DegreeNature	Factor (ComputerScience, ElectricalEngineering, ControlEngineering,)					
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NumberECTS	Natural Number			I		_
NumberYears	Real Number					
languages	Factor (Only Country Language, Only English, Country Language and English, Other)					
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Number Attempts To Be Evaluated One Year	Natural Number Factor (YES, NO)					
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