

ABSTRACT

658 first year undergraduate medical, human science and psychology students were assessed on cognitive and non cognitive measures. Results suggest that first university grades are strongly related to previous school ones in high selective context only. Some personality traits impact university grades, but weakly. These findings are discussed within the actual socio-political debate in Switzerland on widening use of mandatory university entrance cognitive abilities exams.

I. BACKGROUND & GOALS

- Both ability and – more recently- non-ability individual differences measures have been associated with academic school outcome (Richardson, 2012)
- Little is known about their respective impact on high vs. moderate/low selective academic contexts (Chomorro & Furnham, 2007)
- In Switzerland, first year university students show high drop out rates - failures or abandons- which have considerable economic costs. Heated debate is ongoing about extending the entrance attitudinal exam – currently mandatory only for some Medical schools- beyond all Faculties.

GOALS

- to compare prior school performance, learning approaches, personality traits, and motivational factors in different undergraduate selection contexts
- to determine whether and how much they account in predicting 1st year grade s

II. METHODS

- Participants:
- First years university students (N= 658), from 3 faculties different in student sex distribution and in % of success rate

Table 1: % Success rate after 1 year * Faculty

Table 2: Crossstab Sex * Faculty

	% Faculty		
	Medicine	Human Sciences	Psychology
Drop out	54%	17%	26%
Temp Failure	26%	19%	26%
Success	20%	77%	48%
Tot	100%	100%	100%

Sex		Faculty			Tot
		Medicine	Human Science	Psychology	
Men	Men	110	88	25	223
	Women	217	67	151	435
Tot	Tot	337	153	176	658

- Medicine: high selective context vs. Human Science and Psychology: low to moderate selective context. Around 20% of drop out after 1 year over all the Faculties.

- More women overall the Faculties; significantly less men in Psychology and more women in Human Science, Pearson Chi-Square= 66.680, p <.0001.

Measures:

Table 3: Measures

Variables	Measured by	Dimensions	Min/Max
School grades	Final high school GPA, Self-reported	1, HS GPA	0 to 100
Learning Approach	Study Process Questionnaire2R (Biggs, 2011)	2 : Deep Approach DA, Surface Approach SA	1 to 40
Personality	NEO FFI (Costa, 1994)	5: Neuroticism, NEO N Extraversion, NEO E Openness, NEO O Agreeableness, NEO A Conscientiousness, NEO C	0 to 48
Motivation	Home-made scales, Self-reported	4: Intrinsic (mission, vocation, altruism), MI Extrinsic (income, status, executive job), ME Care (patients, illness, life), MC Studies (actual, at the beginning), MS	1 to 6
University grades	First exam university grades	1, Uni grade	1 to 6

- Personality, Motivation, University first exam grades data are presently not available for Human Science Faculty.

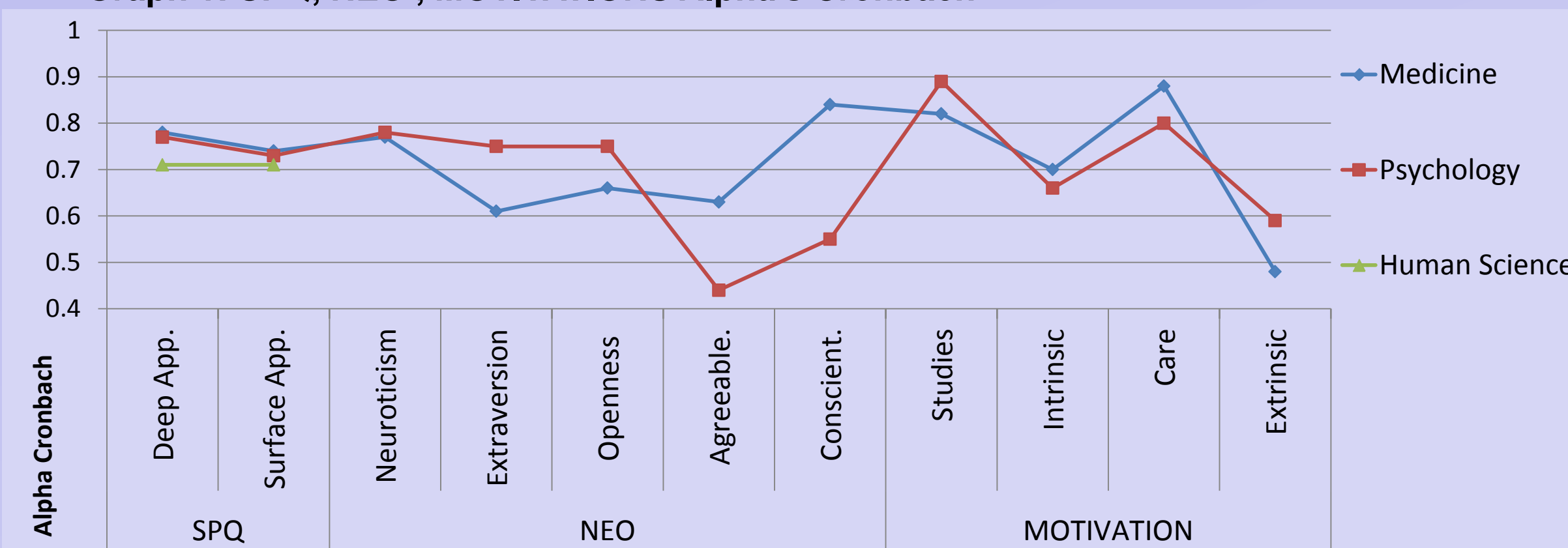
Analysis:

Descriptive, Multivariate ANOVAs, Linear regression

III. RESULTS

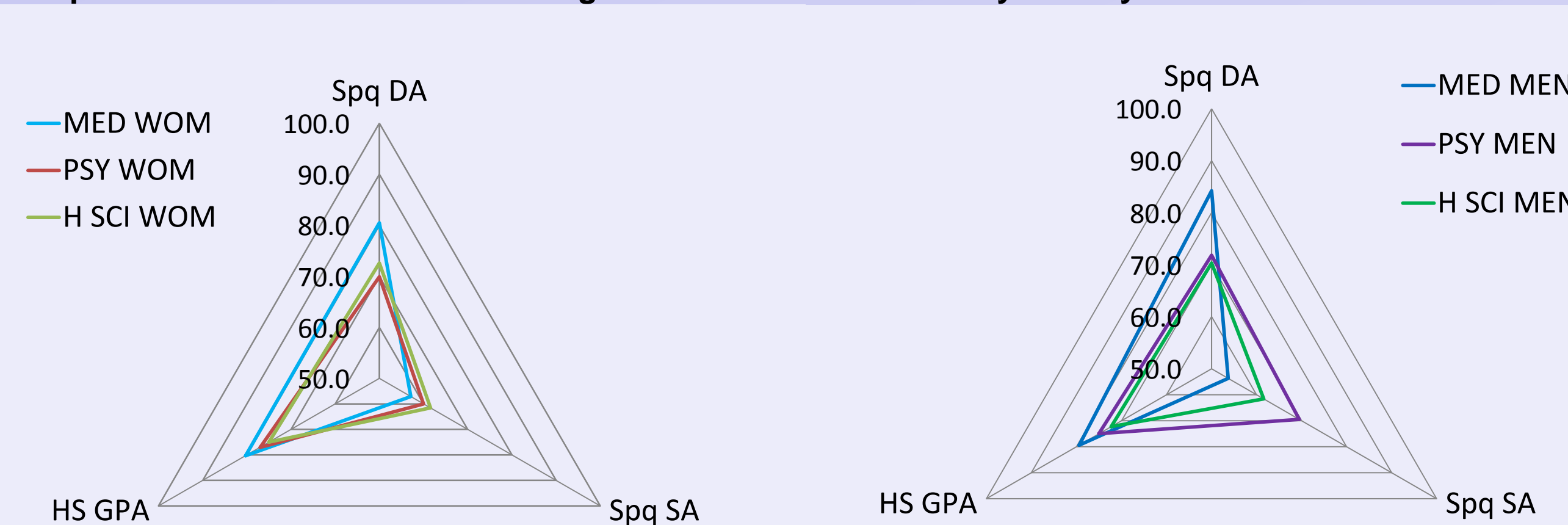
Measures Reliability:

Graph 1: SPQ, NEO, MOTIVATIONS Alpha's Cronbach



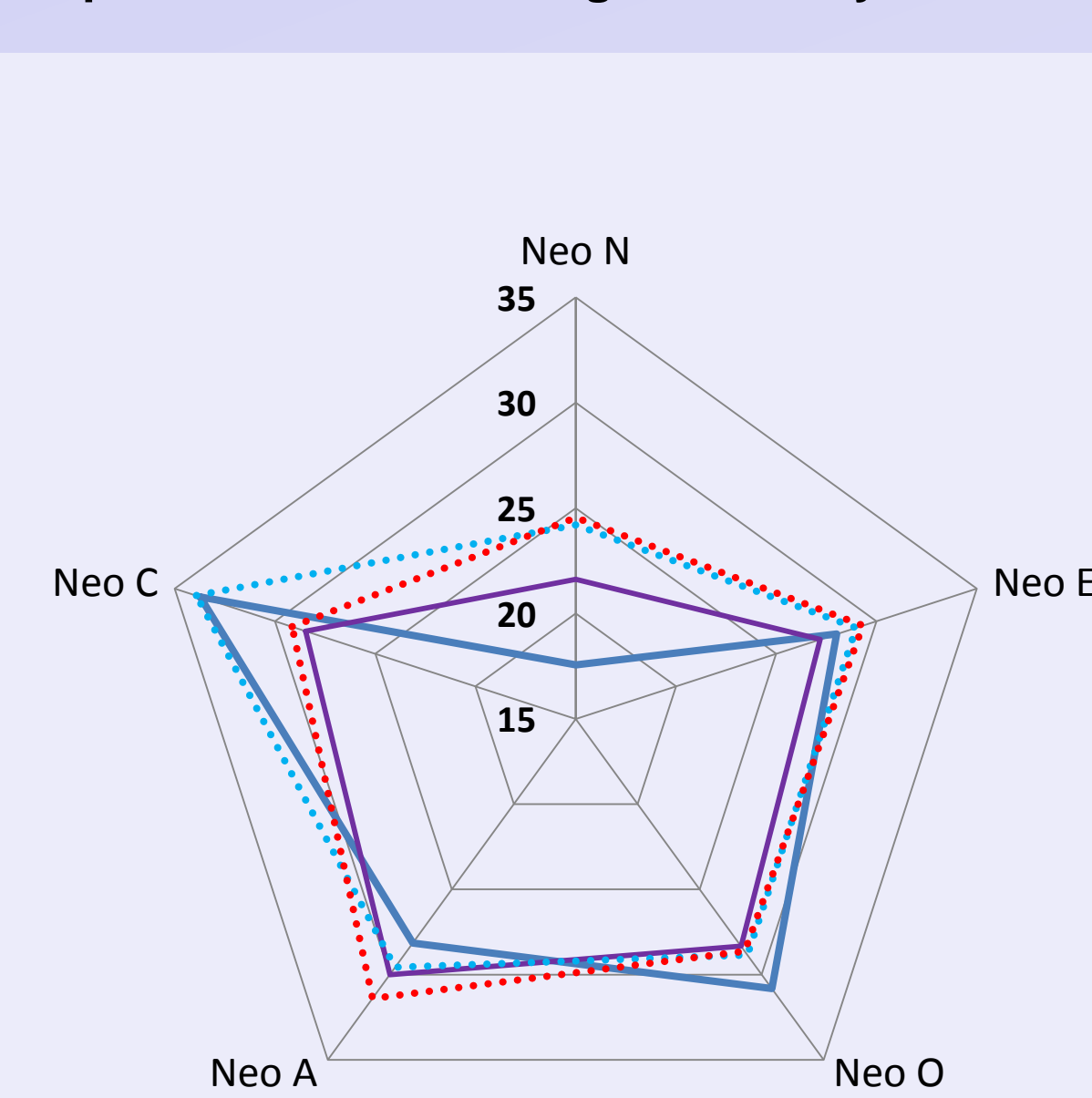
High school GPA and Learning Approach

Graph 2: Women's and Men's average % of SPQ and HS GPA by Faculty



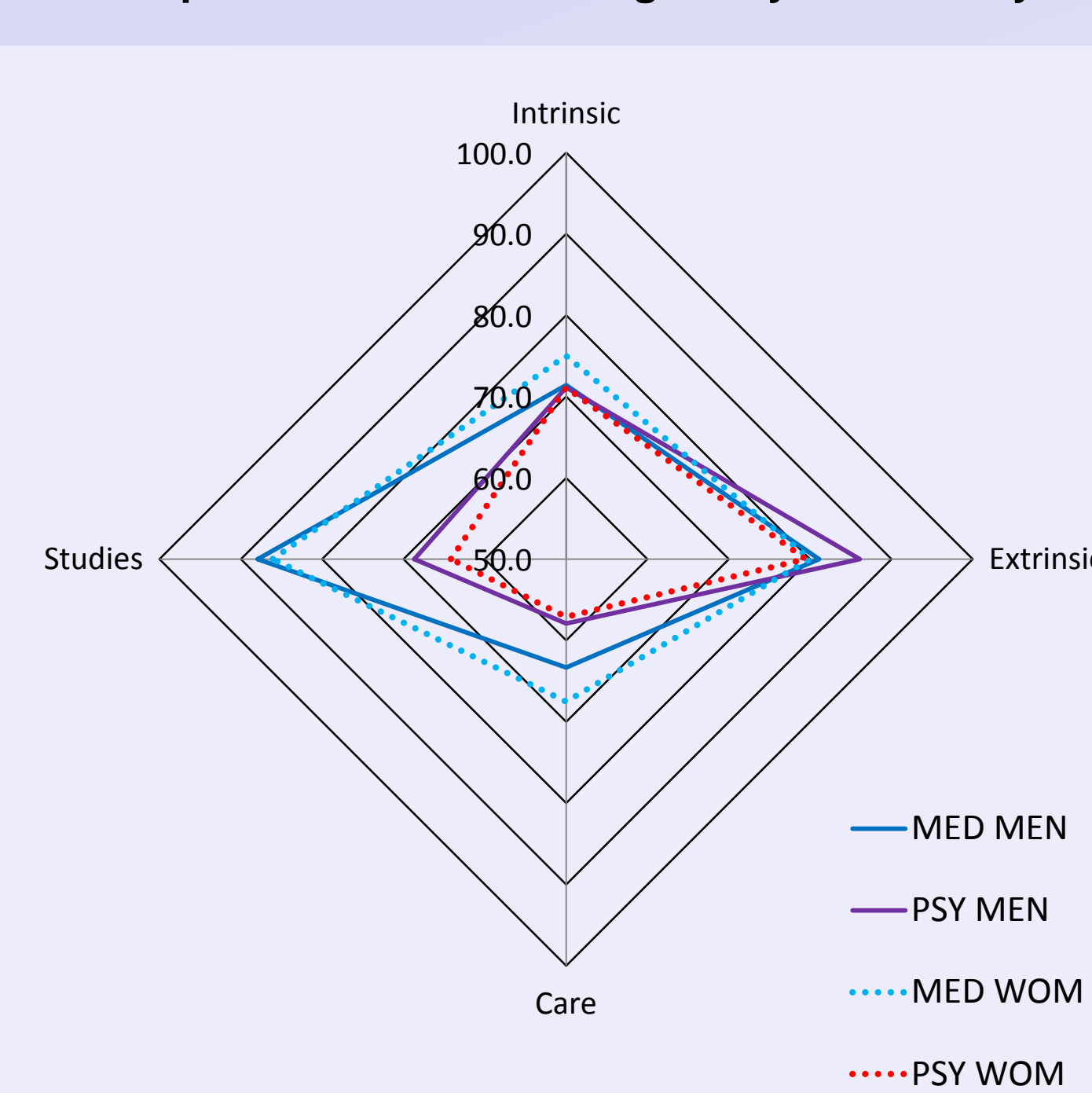
Personality

Graph 3: NEO Raw average scores by Sex/Faculty



Motivation

Graph 4: Motivation average % by Sex/Faculty



Individual differences by Faculty and Sex

Table 4 : ANOVAs by Faculty, Sex, Faculty * Sex

	Medicine		Human Science		Psychology		ANOVA's	ANOVA's	Fac x Sex
	Men (n=110)	Women (n=217)	Men (n=88)	Women (n=67)	Men (n=25)	Women (n=151)			
Scale	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	F=7.352	F=3.332	F=3.228
HS GPA	79.4 (10.7)	80.4 (10.7)	72.3 (19.1)	78.4 (9.1)	75.0 (8.4)	77.1 (11.0)	5.959**	4.770**	0.275
Deep approach	33.6 (7.0)	32.2 (6.1)	28.1 (6.2)	29.0 (4.0)	28.7 (4.5)	28.0 (6.0)	24.183***	0.329	0.961
Surface approach	21.5 (6.5)	22.9 (5.6)	24.7 (5.8)	24.6 (4.5)	27.8 (6.2)	24.2 (5.6)	14.883***	1.213	5.289**
Neuroticism	17.6 (7.7)	24.2 (8.6)	-	-	21.6 (8.4)	24.6 (8.6)	3.375*	15.983***	2.398
Extraversion	28.0 (5.5)	29.0 (5.3)	-	-	27.2 (5.5)	29.3 (6.3)	0.091	3.537*	0.496
Openness	30.8 (6.0)	28.9 (6.4)	-	-	28.3 (6.8)	28.6 (5.7)	2.424	0.918	1.678
Agreeableness	28.1 (6.5)	29.6 (4.7)	-	-	30.0 (4.2)	31.4 (4.4)	6.677**	3.933*	0.111
Conscientiousness	33.7 (7.8)	33.9 (6.6)	-	-	28.5 (6.7)	29.1 (7.3)	24.451***	0.182	0.581
Motiv study	5.3 (1.0)	5.2 (0.9)	-	-	4.1 (1.4)	3.8 (1.7)	49.944***	1.462	0.105
Motiv intrinsic	4.3 (1.1)	4.5 (1.2)	-	-	4.2 (1.0)	4.2 (1.3)	0.913	0.585	0.681
Motiv extrinsic	3.7 (0.9)	3.6 (0.9)	-	-	3.9 (0.9)	3.6 (1.0)	0.849	2.042	0.898
Motiv care	5.0 (1.0)	5.4 (1.0)	-	-	4.6 (0.9)	4.5 (1.2)	23.641***	1.193	2.146

Individual differences and First year University Grades

Table 5 : Linear Regressions of Sex, HS GPA; SPQ, NEO, MOTIVATIONS on first year exam grades by Faculty

	Medicine		
	Beta	t	Sig.
Constant		-1.024	.307
HS GPA	.342	4.909	.000
Deep approach	-.042	-.503	.615
Surface approach	-.042	-.467	.641
Neuroticism	.150	1.845	.067
Extraversion	-.026	-.355	.723
Openness	.222	3.021	.003
Agreeableness	-.085	-1.235	.219
Conscientiousness	.197	2.431	.016
Motiv study	.021	.265	.791
Motiv intrinsic	.046	.570	.569
Motiv extrinsic	-.046	-.637	.525
Motiv care	-.094	-1.162	.247
Gender	-.248	-3.162	.002

	Psychology		
	Beta	t	Sig.
Constant		2.105	.037
HS GPA	.112	1.202	.232
Deep approach	.045	.414	.679
Surface approach	.042	.370	.712
Neuroticism	.177	1.888	.062
Extraversion	.083	.846	.399
Openness	.159	1.666	.098
Agreeableness	-.058	-.632	.529
Conscientiousness	.032	.297	.767
Motiv study	.056	.584	.560
Motiv intrinsic	.202	1.981	.050
Motiv extrinsic	-.018	-.192	.848
Motiv care	-.056	-.557	.579
Gender	.026	.270	.788

IV. CONCLUSIONS

- From their entrance at the University, ability and non ability measure profiles by Faculty are different. Medical students have higher previous high school GPA; they are more deep learners, conscientious and motivated in study and in caring, Psychology students are more surface learners, instable but agreeable. Gender modulate those profiles.
- Previous High school grades were the best predictor of first university exam grades but only in a high selective context such as the Medicine Faculty. Incremental validity is very low for personality traits and zero value for Learning approaches and Motivations. Classical ability/ non ability measures seem to be inappropriate to predict first year grades in low/moderate selective context such as psychology.
- Strong need of further data to profile first year university students and to determine whether/how much variance ability and non ability tests can account for predicting first year university grades controlling by context selective features.
- This could be helpful to better understand if and what kind of entrance exam /as well as further selection would be adequate, effective and fair.

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