

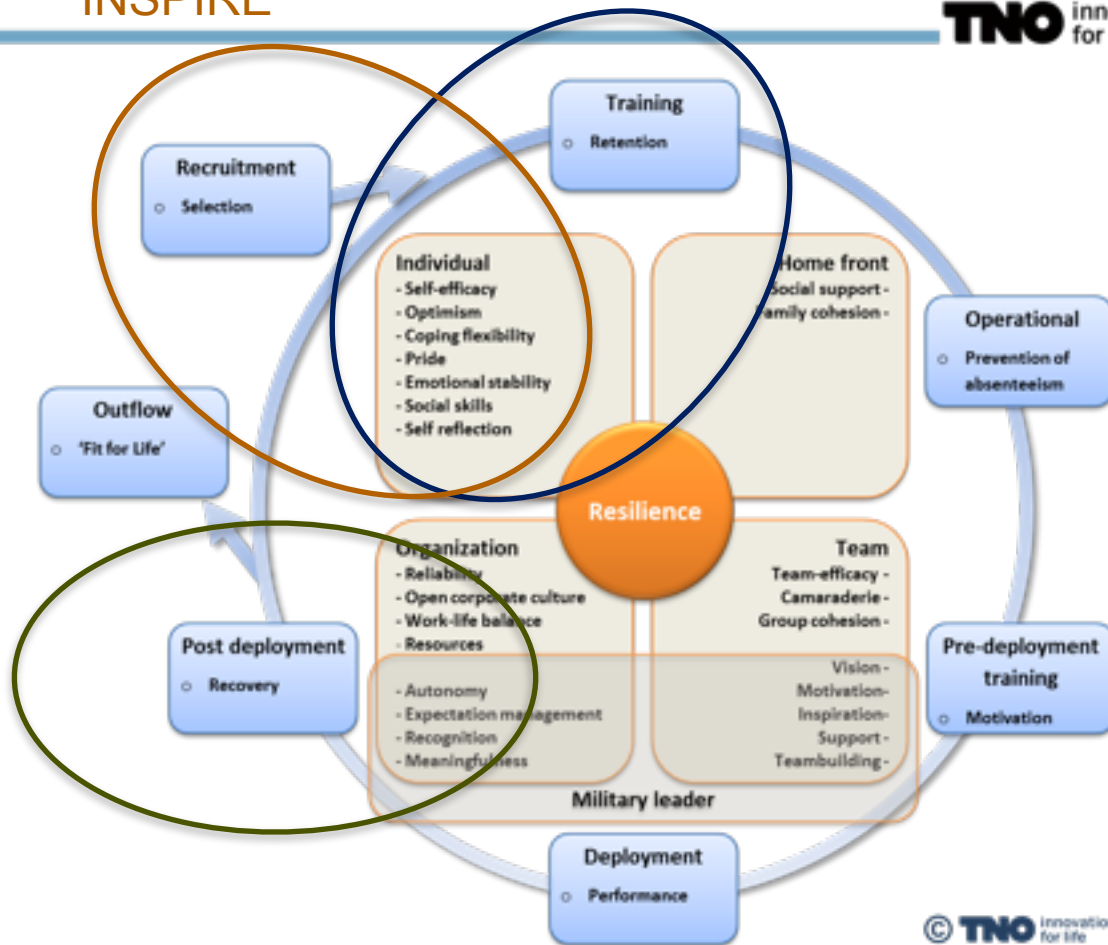
SYMPOSIUM:


MEASURING AND MONITORING RESILIENCE THROUGHOUT THE MILITARY AND POLICE CAREER

**TNO
BELGIAN MINISTRY OF DEFENSE**

TNO innovation
for life

MILITARY RESILIENCE MONITOR (MRM)





IMPROVING MILITARY SELECTION: PSYCHOLOGICAL RESILIENCE SCREENING:

A PREDICTIVE VALIDITY STUDY OF A SELECTION INSTRUMENT ON RESILIENCE IN SEVEN COUNTRIES

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OBJECTIVES INSPIRE PROJECT

Overall objective:

- › Development of a common selection instrument on **resilience** (= INSPIRE Rating Scale; IRS) in order to increase the value of the psychological resilience potential of military candidates. This will result in a reduction of the number of drop outs and an increase of the performance of the candidates.

INSPIRE 1 (2013 – 2015)

- › Development of IRS based on literature and benchmark
- › First validation (N=1538): Psychometric quality of IRS

Presented at IMTA 2014 in Hamburg

INSPIRE 2 (2015 – 2019)

- › Research on **predictive validity** & **variability** of IRS over time



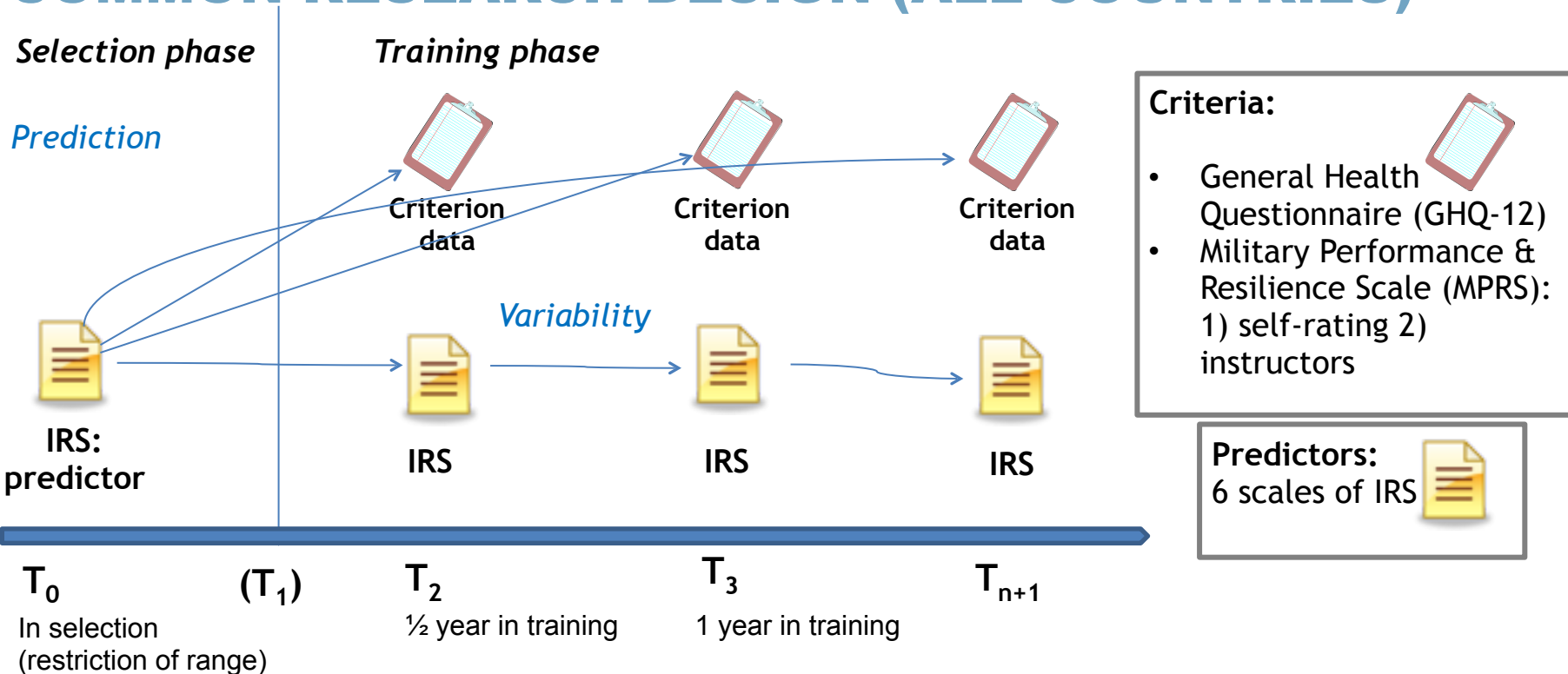
IRS SCALES: SOURCES AND RELIABILITY

Scale*	Source	# items	Cronbach's Alpha**
Coping flexibility	Coping Strategy Questionnaire (Venrooij, Delahaij & Kamphuis, 2014)	40	.84
Emotional stability	HEXACO (De Vries, Ashton & Lee, 2009)	16	.74
Optimism	Military Resilience Monitor (Delahaij, Kamphuis, Binsch & Venrooij, 2014)	6	.66
Social competence		9	.74
Self-efficacy		12	.87
Self-reflection	Self-reflection and Insight Scale (Grant, Franklin & Langford, 2002)	20	.85
IRS Total		103	.91

*All items rated on a 5-points scale, varying from (1) 'not applicable at all' to (5) 'totally applicable'

**Based on T0 (N=9148)

COMMON RESEARCH DESIGN (ALL COUNTRIES)



GENERAL HEALTH QUESTIONNAIRE (GHQ)-12

- › Used as indicator for mental illness
- › Adopted from Goldberg (1972)
- › 12 items with (various) 4 points rating scales.
e.g. (1) *not at all*, (2) *not more than usual*, (3) *more than usual*, (4) *much more than usual*.
- › Cronbach's alpha = .76 (at T3, N=333)

	Have you recently...
1	Been able to concentrate on whatever you are doing?
2	Lost much sleep over worry?
3	Felt that you were playing a useful part in things?
4	Felt capable of making decisions about things?
5	Felt constantly under strain?
6	Felt that you couldn't overcome your difficulties?
7	Been able to enjoy your normal day-to-day activities?
8	Been able to face up to your problems?
9	Been feeling unhappy and depressed?
10	Been losing self-confidence in yourself?
11	Been thinking of yourself as a worthless person?
12	Been feeling reasonably happy. all things considered?

MILITARY PERFORMANCE & RESILIENCE SCALE (MPRS)

- › Common criterion for performance & resilience
- › Self-made in INSPIRE project.

- › 6 items with a 5 points rating scale: (1) *below average*, (2) *slightly below average*, (3) *average*, (4) *slightly above average*, (5) *above average*.

- › Cronbach's alpha at T3 (N=333):
 - › Self-rating: alpha = .76
 - › Instructor's rating: alpha = .90

	Please rate [your/the] overall performance and the abilities to cope with demanding situations of [participant], compared to other trainees in same stages of training.
1	Overall Performance: Achieving training objectives and performance standards.
2	Learning ability: Learning from new experiences and improving [him/her/yourself] continuously.
3	Persistence: Trying hard and long to achieve the training objectives without giving up.
4	Coping with Stress: Staying calm and keeping up when faced with high mental or physical stress, or with adverse conditions.
5	Self-confidence: Keeping up self-confidence and motivation after set-back or failure.
6	Teamwork: Keeping an eye on comrades. lending support if needed. and working effectively together with other students.

PARTICIPANTS PRELIMINARY STUDY



Organizations*	T0	(T1)	T0 + T2	T0 + T3
Defense BE/FR	1103	333	130	15
Defense BE/NL	1163	377	161	34
Defense NL	857		50	22
Police NL	5815		142	163
Defense SWE	210			99
Defense FI**	576		232	
Total	9724	710	483	333

* Defense Germany and Norway will be added later; also extra data for T1 - T3 will be added

** Defense Finland: not included yet in the total data set; only separate results

PEARSON CORRELATIONS¹ T0 – T3 TOTAL

¹Correlations are not corrected for restriction-of-range

²High score means: 'not healthy' (reversed from MPRS-SR and MPRS-IR).

	MPRS-SR (n=299)	MPRS-IR (n=333)	GHQ-12 ² (n=299)
IRS Total	.26**	.19**	-.25**
Coping Flexibility	.04	-.04	-.10
Emotional Stability	.11	.04	-.22**
Optimism	.18**	.26**	-.19**
Social Competence	.17**	.08	-.10
Self-Efficacy	.25**	.12*	-.23**
Self-Reflection	.20**	.17**	-.07

***. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

INTERCORRELATIONS AT T3

	MPRS-SR (n=606)	MPRS-IR (n=593)	GHQ-12 (n=606)	IRS (at T3) (n=606)
MPRS-SR	1			
MPRS-IS	.28**	1		
GHQ-12	-.39**	-.30**	1	
IRS (at T3)	.42**	.26**	-.40**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

LINEAR MULTIPLE REGRESSION ANALYSIS (T3): MPRS-SR

	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>T</i>	<i>Sig</i>
Coping Flexibility	-.14	.10	-.08	-1.33	.186
Emotional Stability	.01	.10	.01	0.11	.911
Optimism	.07	.07	.06	1.02	.310
Social Competence	.08	.09	.06	0.92	.357
Self-Efficacy	.26	.11	.19	2.45	.015
Self-Reflection	.14	.08	.12	1.81	.072

Explained variance: 9 %; $F_{6,291} = 4.802$; $p = .001$

LINEAR MULTIPLE REGRESSION ANALYSIS (T3): MPRS-IR

	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>T</i>	<i>Sig</i>
Coping Flexibility	-.21	.13	-.10	-1,61	.108
Emotional Stability	-.01	.11	-.01	-0.10	.922
Optimism	.31	.08	.23	3.84	.000
Social Competence	-.05	.11	-.03	-0.50	.614
Self-Efficacy	.11	.13	.06	0.81	.420
Self-Reflection	.17	.09	.12	1.94	.053

Explained variance: 9 %; $F_{6,325} = 5.077$; $p = .001$

LINEAR MULTIPLE REGRESSION ANALYSIS (T3): GHQ-12

	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>T</i>	<i>Sig</i>
Coping Flexibility	-.05	.07	-.05	-0.77	.442
Emotional Stability	-.14	.06	-.16	-2.26	.024
Optimism	-.10	.04	-.14	-2.29	.023
Social Competence	-.01	.06	-.01	-0.13	.899
Self-Efficacy	-.09	.07	-.10	-1.24	.216
Self-Reflection	.02	.05	.03	0.39	.696

Explained variance: 9 %; $F_{6,291} = 4.647$; $p = .012$

CONCLUSIONS: OVERALL PREDICTIVE VALIDITY

Overall predictive validity of IRS

- › Predictive validity of IRS for self-rated performance (MPRS-SR) and health (GHQ-12) is acceptable ($r > .25$)
- › The instructor's ratings (MPRS-IR) are predicted worst: due to different training contexts?

The best predictors within IRS

- › Emotional stability is the best predictor for health (GHQ-12)
- › Optimism is the best predictor for instructor's ratings (MPRS-IR)
- › Self-efficacy is the best predictor for self-rated performance (MPRS-SR)

The worst predictors within IRS

- › Coping flexibility is the worst predictor: other type of measure?
- › Social competence and self-reflection are not good predictors

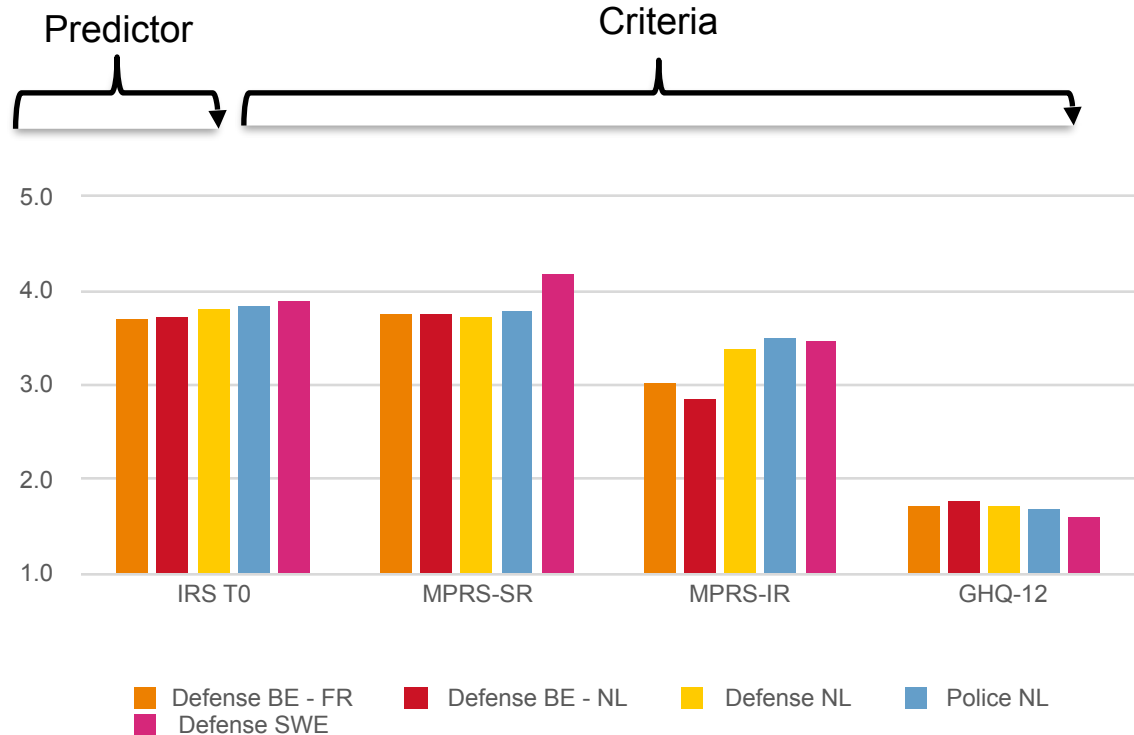


Coping flexibility

DIFFERENCES BETWEEN ORGANISATIONS

› One-way ANOVA:
all means are sign
different at $p < .05$

› Sweden scores
overall the most
resilient/healthy



PEARSON CORRELATIONS: IRS TOTAL

IRS Total	N	MPRS-SR	MPRS-IR	GHQ-12
Defense BE-FR	15	.39	.45	-.32
Defense BE-NL	31	.11	.02	-.02
Defense NL	22	-.14	-.36	.15
NL Police	157	.29**	.07	-.09
Defense SWE	74	.28*	.22*	-.56**
Defense FI (T2)	232	.23**	.11	-.16*

** *Correlation is significant at the 0.01 level (2-tailed).*

* *Correlation is significant at the 0.05 level (2-tailed).*

PEARSON CORRELATIONS: PREDICTORS (N > 50)

	MPRS-SR			MPRS-IR			GHQ-12		
	NL Pol	SWE	FI	NL Pol	SWE	FI	NL Pol	SWE	FI
Coping Flexibility	.11	.36**	-.01	.00	.04	.07	-.06	-.26*	.02
Emotional Stability	.26**	.14	.17*	.00	.11	.20*	-.17*	-.38**	-.15*
Optimism	.07	.13	.13*	.21**	.28**	-.01	.00	-.53**	-.18**
Social Competence	.16*	.09	.10	-.09	-.02	.13	.02	-.21	-.01
Self-Efficacy	.30**	.22	.17**	.01	.10	.09	-.17*	-.45**	-.16*
Self-Reflection	.22**	.16	.20**	.08	.23*	-.09	.01	-.23	.02

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

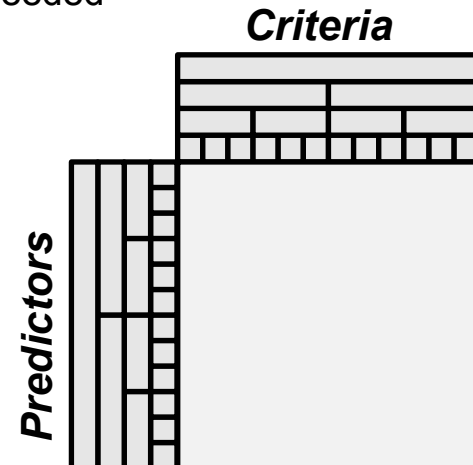
CONCLUSIONS: PREDICTIVE VALIDITY PER ORGANIZATION

Predictive validity of IRS

- › Sweden overall has the highest predictive validity, especially for health (GHQ-12). Sweden also has the best scores regarding the predictor and resilience scores in general.
- › Dutch Police and Defense Finland have highest predictive validity for self-rated performance (MPRS-SE)
- › Too low N for Defense in Belgium and The Netherlands: more data needed

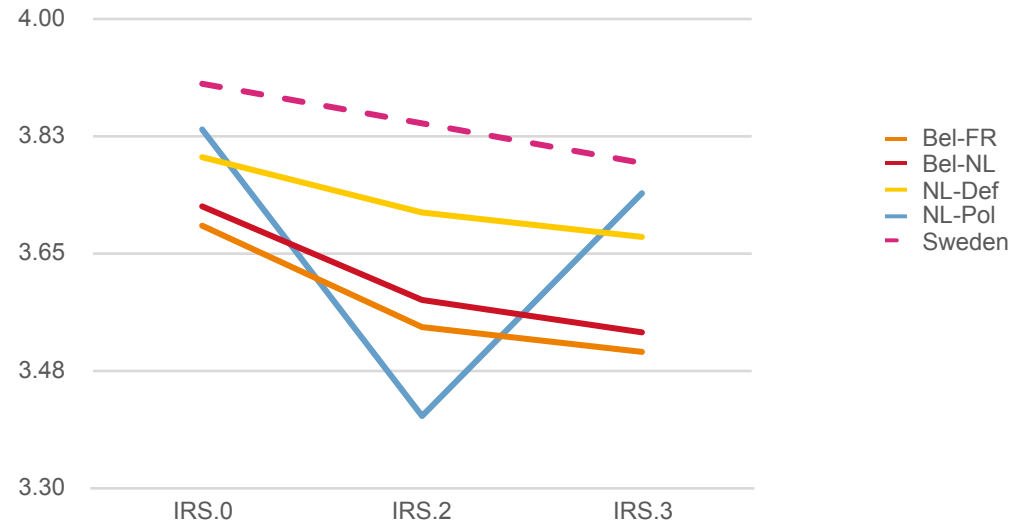
Predictors within IRS

- › Emotional stability is the best predictor in all organizations
- › Coping flexibility is the worst predictor in all organizations



VARIABILITY OF IRS OVER TIME: EXPLORATION

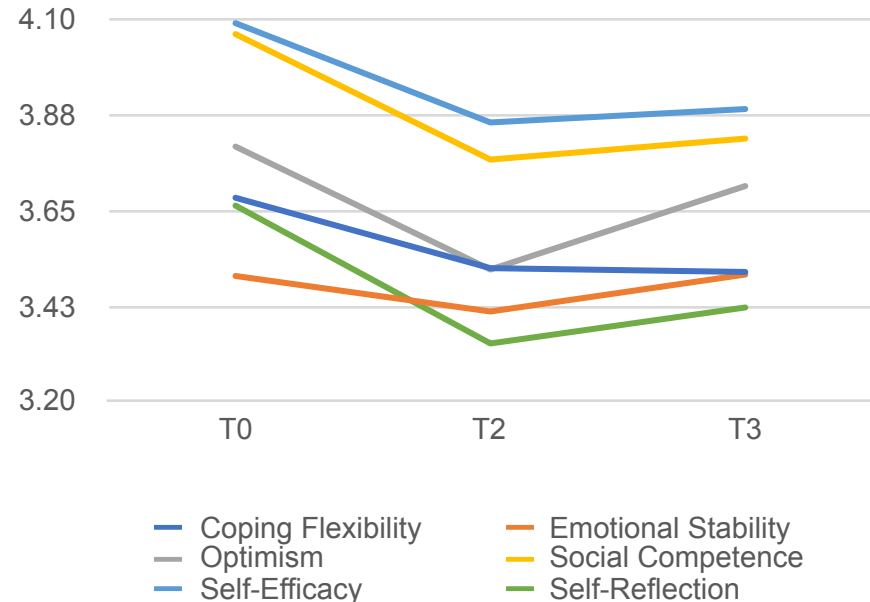
- ▶ Repeated measure ANOVA: all (within-subjects; between-subjects) are sign. at $p < .01$
- ▶ All IRS scores decrease over time (due to training requirements?)
- ▶ Comparable patterns but only small differences



**Sweden: no IRS at T2*

VARIABILITY PER PREDICTOR OVER TIME: EXPLORATION

- › Repeated measure ANOVA: all (within-subjects; between-subjects) are sign. at $p < .01$
- › Emotional stability & coping flexibility seem to be most constant (stable personal characteristics?)
- › Only small differences between the IRS scales



FUTURE STEPS

Continu with data collection and analyses:

- › Add extra criteria data: N = circa 400 (T2), 200 (T3), 250 (T4)
- › Predictive validity for other criteria: T2 and T4, # dropouts
- › Detailed analyses (e.g. per predictor) for variability of IRS
- › Analyses per organisation, incl. other selection instruments

Final result: IRS 3.0 (August, 2019)

- › Implementation of IRS, validated in 7 organisations
- › User manual: instructions for practical use
- › Dashboard for the selection psychologist

