



ELTE

FACULTY OF EDUCATION
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INSTITUTE OF
PEOPLE-ENVIRONMENT
TRANSACTION



Effects of ESD on students' pro-environmental behaviour and action competences

Students on sustainability in Hungary, Czechia and Slovakia

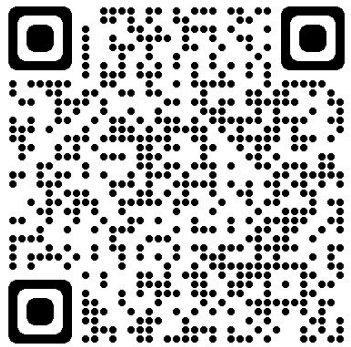
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Introduction

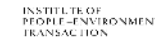
- Sustainability Thematic Week
- Teachers and Students on Sustainability Research Program
- Cooperating organizations



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Aims of the research

- Establishing research cooperation
 - Adapting the questionnaires to national languages
 - Using a common sampling procedure
 - Developing a common data collection system
 - Shared data processing
- Examining the attitudes and actions towards sustainability and climate change among **17-year-old students** (those who approach the end of the compulsory education)
- Examining the psychological, sociological and school background

Methodology

Representative sample survey:

Conducted in October 2022, among
17-year-old, 11th grade secondary school
students




Two-stage sampling method:

1. school selection (proportionally stratified: by
region & type of school*)
2. random class selection within schools

Weighting data:

for region, type of school, gender

*in Czechia and Hungary

	Joint Sample	Hungary 	Czechia 	Slovakia 
Total	6477	3536	1656	1387
girls	3112	1628	812	676
boys	3365	1806	844	711
age	M=16.7	M= 16.9	M= 16.5	M= 16.6

Measures

118 items + additional country-specific questions

Questions on students' demographic and socioeconomic background

Inclusion of Nature in Self Scale (Schultz, 2001).

New Environmental Paradigm Scale for Children (Manoli et al., 2007)

Climate change attitudes (Christensen & Knezek, 2015)

2-MEV: Intention to act & Utilization of nature subscales (Bogner, 2018)

Eco-Guilt, Eco-anxiety (Ágoston et al., 2022)

Place attachment, place identity (Jan Cincera et al., 2015)

Locus of Control (Powell et al., 2011)

Environmental hope (Kerret et al., 2020)

Sustainable fashion (Jung, Jin 2014)

Effectiveness of ESD – School culture (Pauw et al., 2015)

Pro-Environmental Behavior (Mónus, 2021)



Self-perceived action competence" scale, Knowledge of action possibilities subscale (Olsson et al., 2020)

School culture / ESD approaches

Evaluating the quality of ESD
according to UNESCO guidelines.
(*Boeve-de Pauw et al., 2015*)

- Theoretical knowledge
- Critical thinking
- Action competence
- Civic engagement



Source: iStock

School culture / ESD approaches

Holistic approach

Interdisciplinary perspective, integrating environmental, social, and economic dimensions to address complex sustainability issues.

Pluralistic approach

Supports the inclusion of diverse perspectives, critical thinking, fostering a democratic learning environment.

Descriptive statistics and comparison

	Joint Sample M (SD)	Hungary M (SD)	Czechia M (SD)	Slovakia M (SD)	Pauw et. al. (2015) M (SD)
Holistic approach to content					
In school, we look at the connections between the past, the present, and the future as regards various issues.	2.72 (1.029)	2.74 (1.017)	2.69 (1.056)	2.72 (1.014)	3.78 (1.11)
In school, we look at both local and global problems and the connection between them.	2.61 (1.006)	2.62 (1.001)	2.53 (1.037)	2.65 (0.974)	3.46 (1.30)
In school, we look at how economics, social issues, and environmental problems are connected.	2.67 (1.030)	2.68 (1.018)	2.61 (1.066)	2.69 (1.011)	3.37 (1.29)
Pluralistic approach to teaching					
When we have class discussions, it is possible for many different views to emerge.	3.35 (1.142)	3.26 (1.150)	3.58 (1.125)	3.30 (1.104)	3.94 (0.95)
When we read texts in school, we usually take a critical look at the content	2.86 (1.056)	2.94 (1.062)	2.75 (1.070)	2.78 (1.014)	3.43 (1.18)
In school, we are encouraged to take a stand and have our own opinions on the issues at hand.	3.10 (1.182)	3.12 (1.196)	2.98 (1.172)	3.22 (1.154)	3.82 (1.24)
We decide what we study ourselves, with support of the teacher.	2.34 (1.213)	2.17 (1.150)	2.78 (1.309)	2.21 (1.114)	2.03 (1.00)

Action Competences

AC is a person's capacity to identify, evaluate, and take effective actions on sustainability issues. (Olsson et al., 2020)

Self-Perceived Action Competence for Sustainability Questionnaire (SPACS-Q)

1. Knowledge of action possibilities (KAP)
2. Confidence in ones own influence (COI)
3. Willingness to act (WTA)



Source: iStock

Knowledge of action possibilities subscale (modified)

Knowledge of action possibilities (KAP) measures understanding of specific actions that can address sustainability issues at school, home, and society.

5-point Likert scale how much they agree with statements (1 = totally disagree; 5 = totally agree).



Source: iStock

Pro-Environmental Behavior (PEB)

Actions individuals take to minimize their environmental impact.

Influenced by environmental attitudes and contextual factors, e.g. socioeconomic background and school-level environmental education policies (Mónus, 2022).



Source: iStock

Pro-Environmental Behavior (PEB)

Our 10 item PEB scale includes items measuring everyday actions that reflect environmental responsibility.

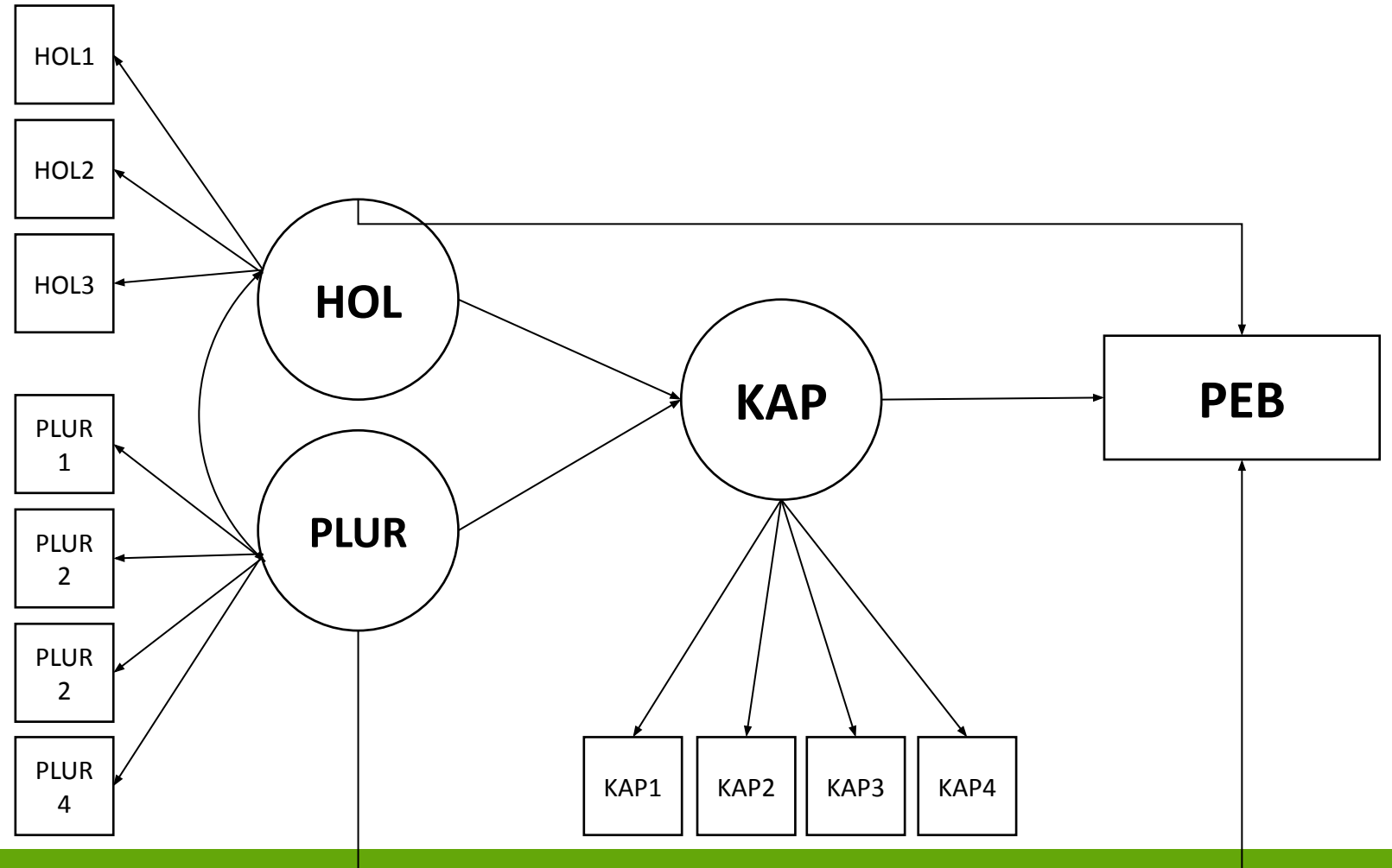
The personal PEB scale values were calculated using the Rasch method.

Scale appears to perform reliably in Hungary, while in Czechia and Slovakia, it may need's some improvement or exploration cultural differences in responses to specific items.

Country	Cronbach's α
Hungary	0.712
Czechia	0.646
Slovakia	0.638

ESEM Model

How ESD approaches influence PEB through KAP.



Model Fit Indicators

The model fit indicators are good for all three samples.

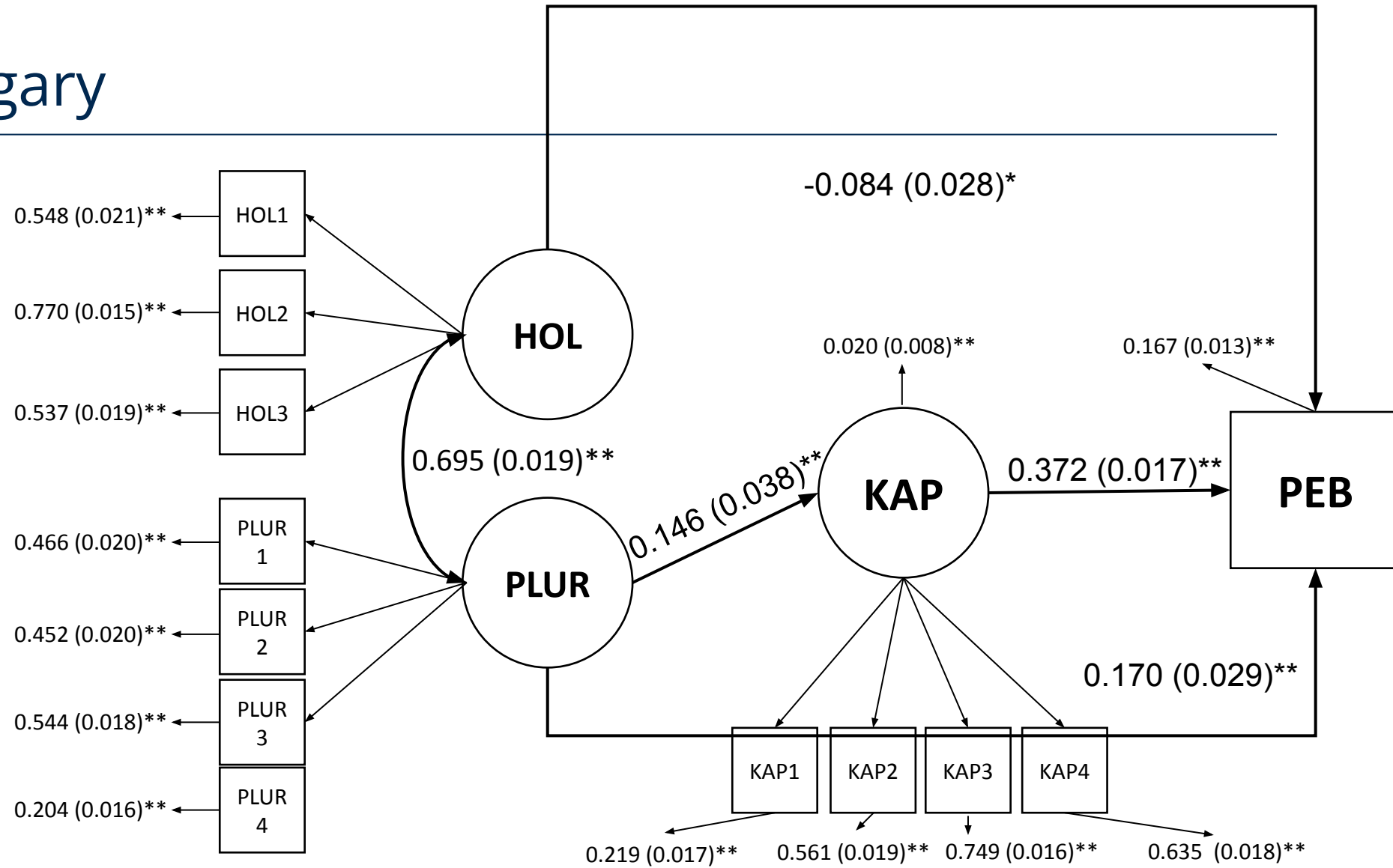
Only the Hungarian RMSEA is above the criterion, but this is also considered acceptable.

Fit indices	Cut-Off Criterion	HU	Cz	SK
RMSEA	< 0.05	0.053	0.035	0.037
CFI	> 0.90	0.952	0.975	0.957
TLI	> 0.90	0.935	0.966	0.942
SRMR	< 0.08	0.039	0.028	0.039
χ^2	$p > 0.05$	$p = 0.000$	$p = 0.000$	$p = 0.000$

Green = excellent fit

Results: Hungary

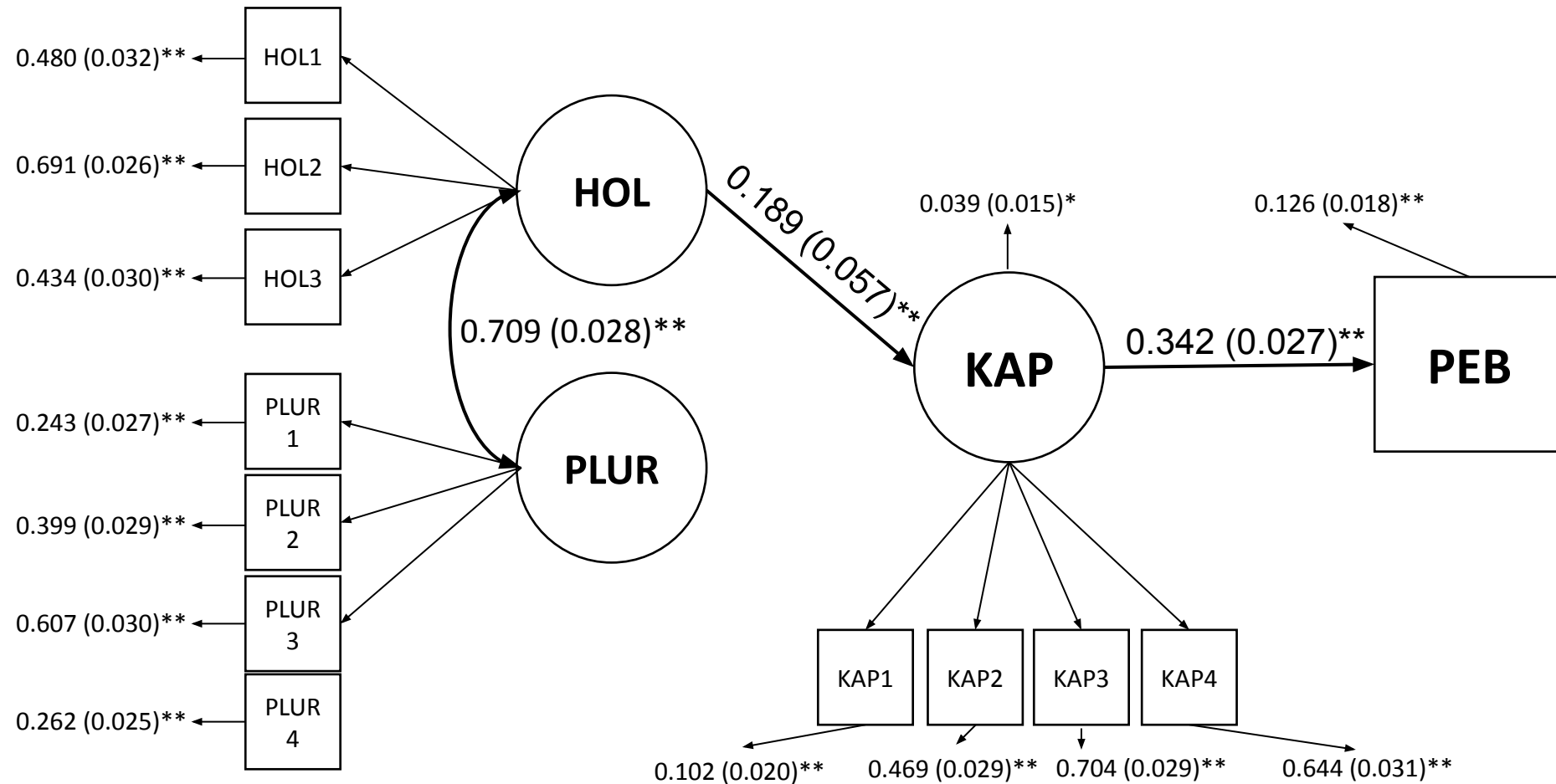
- Pluralism has a moderate positive effect on KAP.
- KAP have a strong and positive effect on PEB.
- Holism has a slight negative, pluralism has a positive effect on PEB.



*p < 0.01; **p < 0.001

Results: Czechia

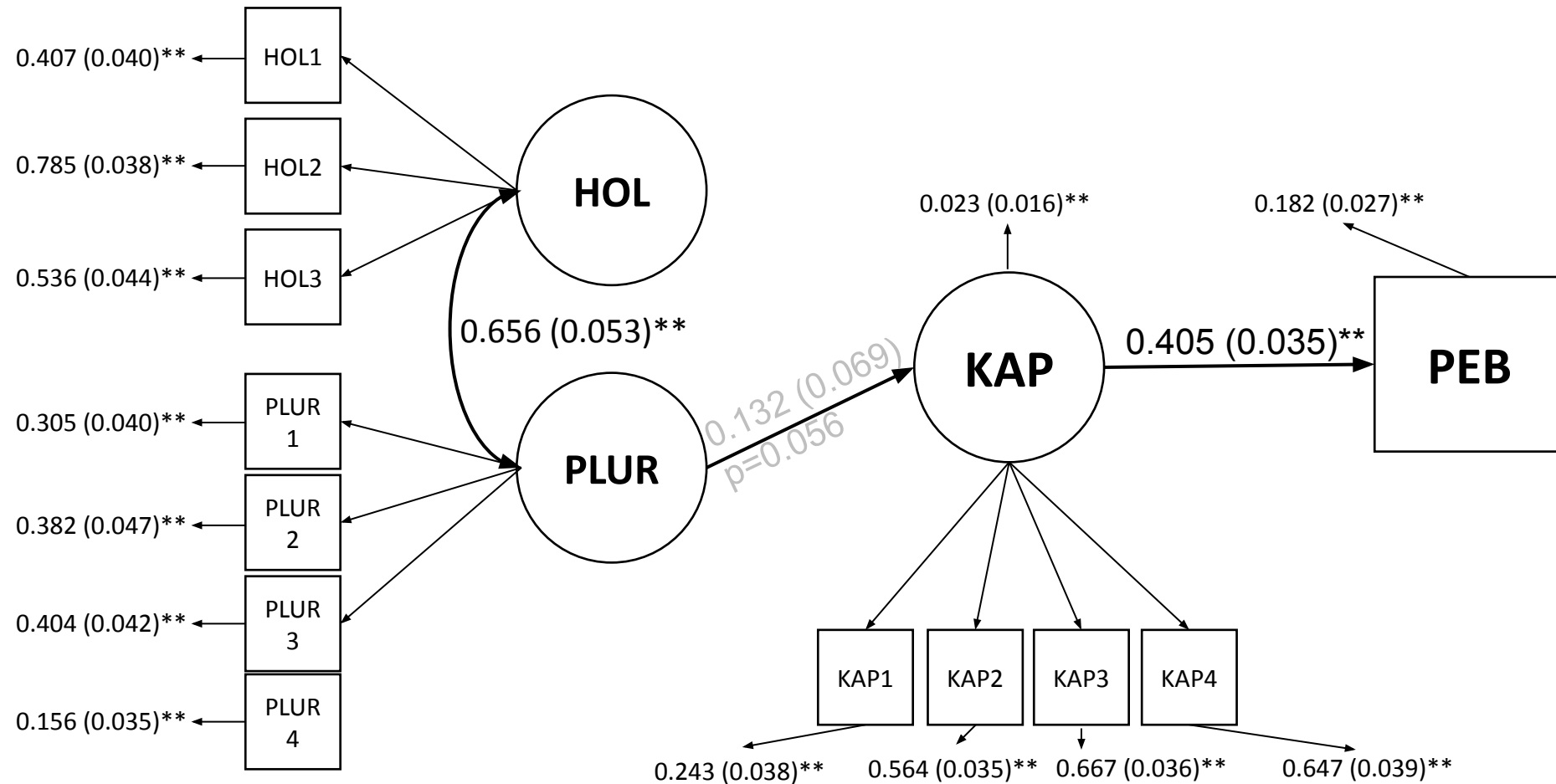
- Holism has a positive moderate effect on KAP.
- KAP have a strong and positive effect on PEB.
- Strong positive association between HOL and PLUR



*p < 0.01; **p < 0.001

Results: Slovakia

- PLUR has an almost significant positive effect on KAP
- KAP have a positive moderate effect on PEB.
- Strong positive association between HOL and PLUR



*p < 0.01; **p < 0.001

Summary

Hungary: Pluralism has a stronger influence on knowledge of action possibilities and pro-environmental behavior, while holism shows a slight negative impact on pro-environmental behavior.

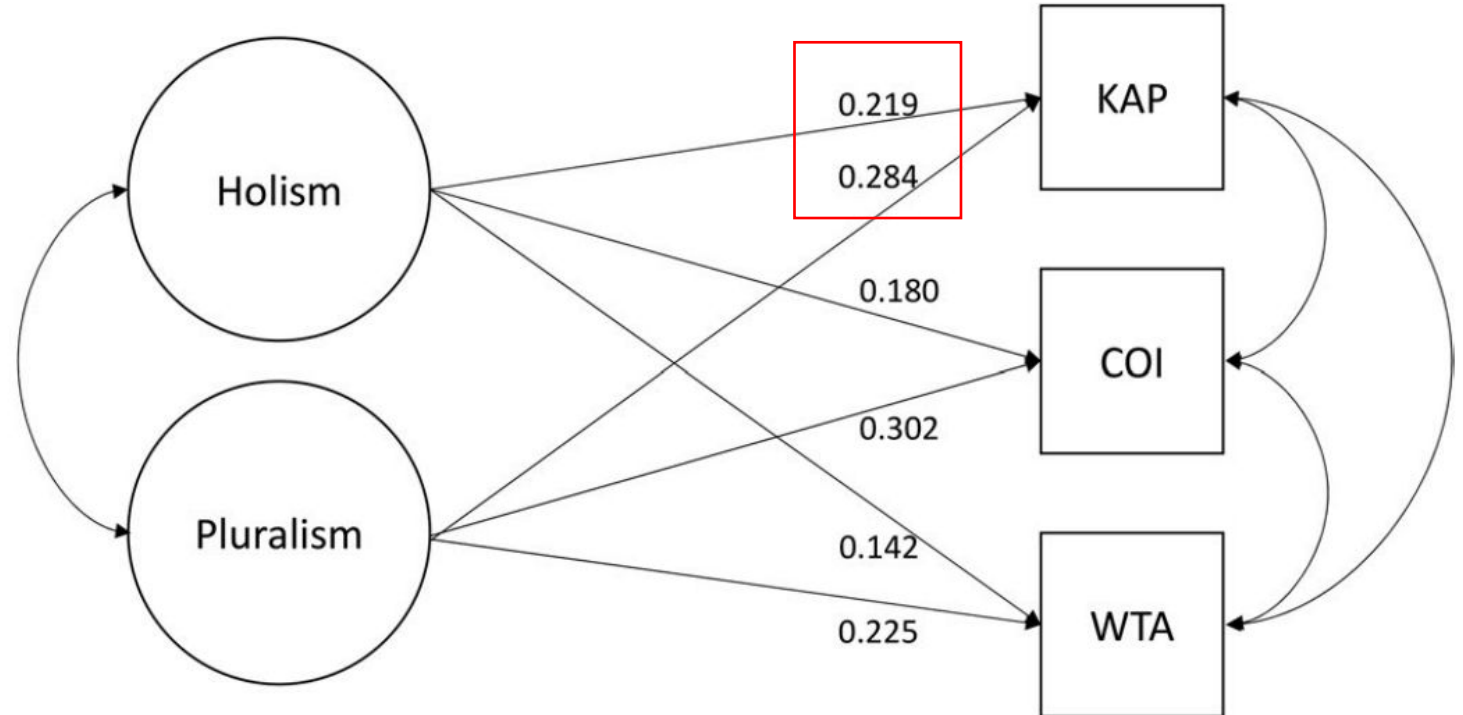
Czechia: Holism significantly influences knowledge of action possibilities, but pluralism has no substantial effect. Pro-environmental behavior is primarily influenced by action competences.

Slovakia: Similar to Czechia, KAP is the primary driver of PEB, while HOL and PLUR have weak and non-significant effects on both KAP and PEB, indicating weaker associations overall.

Comparison with Swedish results

Compared to other research (Olsson et al., 2022), the effects of ESD on KAP is lower, than expected.

May be influenced by unique aspects of the Swedish educational approach.

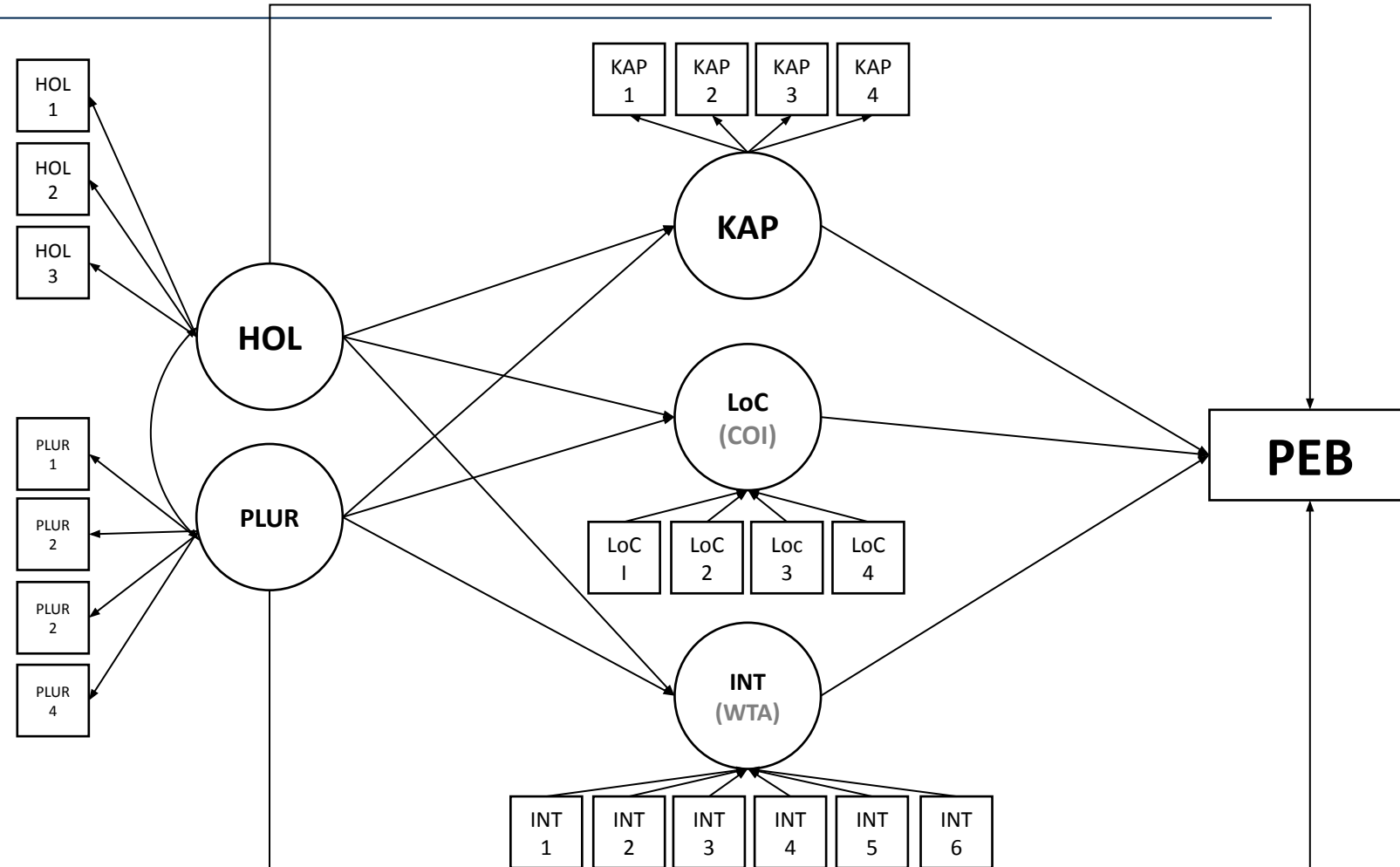


Effects of ESD (holism and pluralism) on the three constructs of action competence, knowledge of action possibilities (KAP), confidence in one's own influence (COI), and willingness to act (WTA)

Next steps

Extended ESEM model with other variables:

„Confidence in one's own influence” subscale was replaced with “Locus of control”;
“Willingness to act” subscale was replaced with “Intention to act” (2-MEV).



Literature

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Thank you!

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