GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

Preservice Physical Education Teachers' Digital Literacy

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Research Goal

Explore the association of PE preservice teachers' digital literacy as well as role modeling by teacher educators with PE preservice teachers' ICT integration intent in future teaching practice.

Theoretical Background

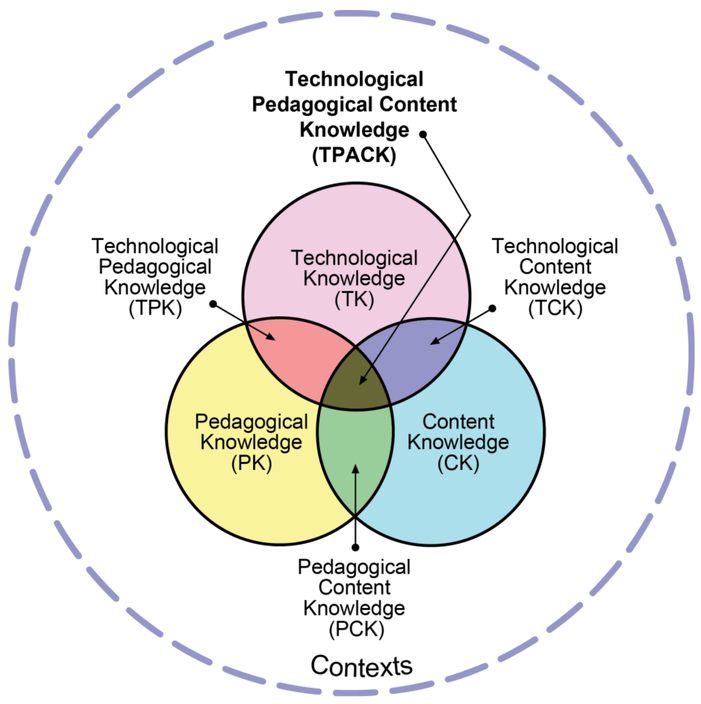

Figure 1. The technological, pedagogical, and content knowledge (TPACK) model (reproduced with permission from http://tpack.org).

Method

- 50-item online quantitative survey based on Endberg (2019) and Schmidt et al. (2009)
- n=185 of 417 preservice teachers in Baden-Württemberg (= 44,4 % of the cohort) in the period 26.04. - 09.05.2021
- Sociodemographics:
  - 50% male; 49% female; 1% divers
  - Average Age: 28 years (SD = 4,4)
- **Data Proofing**: Accreditation of internal validity (Cronbach's α and Spearman-Brown coeffiecient) & item-proofing via correlation-analysis

References

Endberg, M. (2019). *Professionswissen von Lehrpersonen zum Einsatz digitaler Medien im Unterricht. Eine explorative empirische Untersuchung mit einer repräsentativen Stichprobe von Lehrpersonen der Sekundarstufe I in Deutschland.* Münster: Waxmann.

Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J. & Shin, T. S. (2009). Technological Pedagogical Content Knowledge (TPACK). *Journal of Research on Technology in Education, 42*(2), 123-149.

Von Kotzebue, L. (2022). Two is better than one—Examining biology-specific TPACK and its T-dimensions from two angles. *Journal of Research on Technology in Education* (online first).

Wohlfart, O., Mödinger, M. & Wagner, I. (2023). Information and communication technologies in physical education: Exploring the association between role modeling and digital literacy. *European Physical Education Review (online first).*

Descriptive Analysis

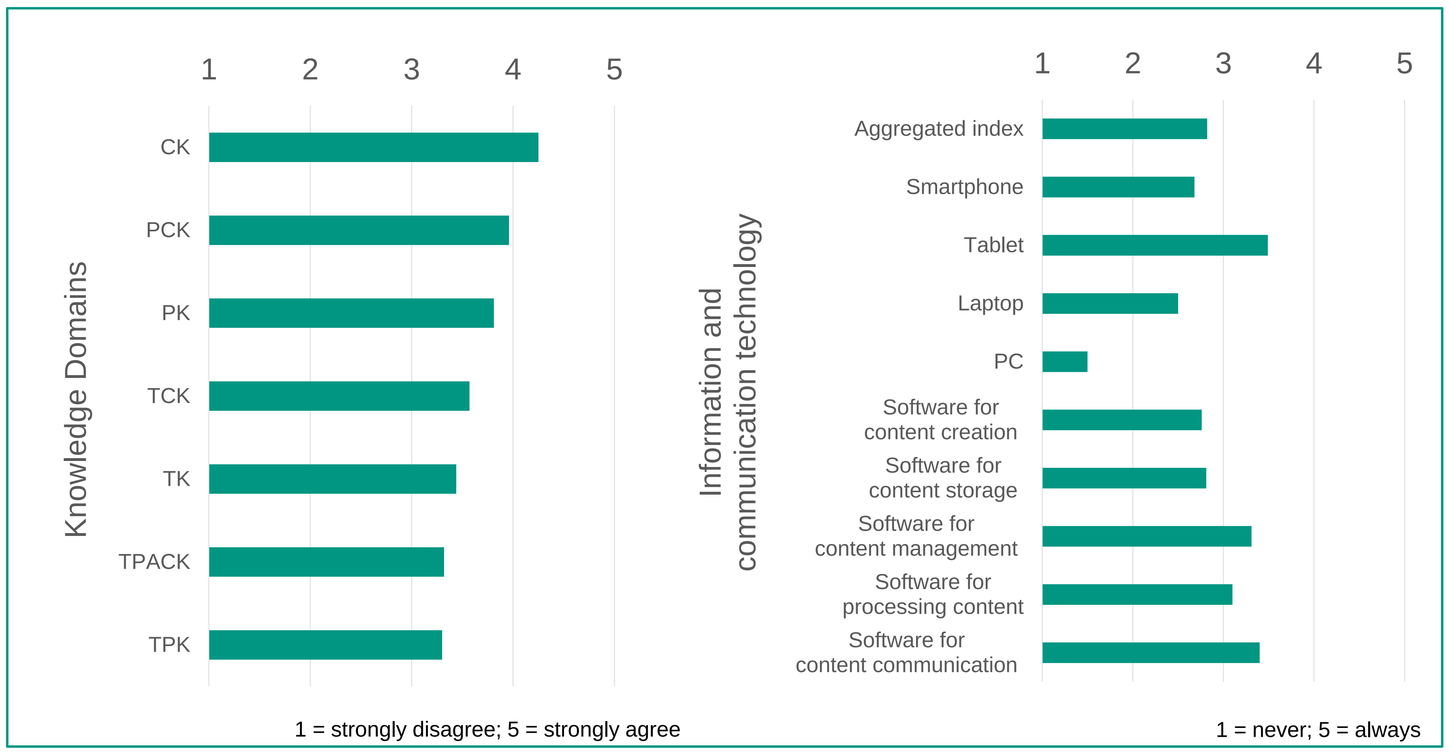

Figure 2. Descriptive statistics for preservice PE teachers' self-assessments of proficiency in TPACK domains (n = 132) and Information and Communication Technology (ICT) integration intent (n = 113).

Results

	Models: Self-assessment of knowledge domains		Models: intended integration of ICT					
	TK	TPK	Aggregated index of all nine ICT	Smartphone	Laptop	PC	Software for content creation	Software for content storage
Constant	3.313** (0.302)	3.078** (0.232)	2.324** (0.228)	2.535* (0.372)	1.506** (0.048)	1.276 (0.317)	1.895** (0.440)	2.706** (0.479)
Smartphone	-	-	-	-	-	0.281** (0.092)	-	-
Tablet	-	-	-	-	-	-	-	-
Laptop	-0.101+ (0.061)	-	-	-	0.348** (0.090)	-	0.197* (0.089)	-
PC	-	-	-	-	0.203* (0.080)	0.208** (0.057)	-0.157+ (0.079)	-
Software for content creation	0.155* (0.066)	0.135** (0.051)	0.133** (0.050)	-	-	-	0.512** (0.097)	-
Software for content storage	-	-	-	0.171* (0.086)	-	-	-	0.316** (0.113)
Software for content management	-	-	-	-	-	-0.139+ (0.079)	-	-
Software for content processing	-	-	0.127* (0.063)	-	-	-	-	-
Software for content communication	-	-	-0.108+ (0.061)	-0.233* (0.100)	-0.207+ (0.119)	-	-0.203+ (0.119)	-0.265* (0.130)
n	112	112	112	111	112	110	111	111
R^2	0.149*	0.164*	0.165*	0.150*	0.263**	0.208**	0.316**	0.170*
Corrected R^2	0.075	0.091	0.092	0.075	0.198	0.138	0.256	0.097

Notes:
Standard errors in parentheses.
Only significant models and results are reported (+ Significant at the 10% level; * Significant at the 5% level; ** Significant at the 1% level.

Table 1. *Association between university lecturers' ICT integration and pre-service teachers' self-assessments and ICT integration intent.*

Discussion

Results revealed positive associations between self-assessed PK, CK, and ICT integration intent in future teaching practice. The results for the technological dimension (TK) deviated to some extent, indicating greater respondent heterogeneity in relation to this knowledge domain. In addition, teacher educators' role modeling positively impacted digital literacy and ICT integration intent. Teacher educators' use of software for content creation was positively associated with preservice teachers' self-assessments of TK and TPK. As TK and TPK were among the lowest-scoring domains, it seems important to promote the use of specific ICT in teacher education (von Kotzebue, 2022). Finally, inadequate role modeling seems to have implications for digital literacy in preservice teachers and PE education, emphasizing the need for further research in this area.

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