Self-assessment for teachers on professional knowledge of digital media literacy in inclusive and digital learning environments (Meidl)

English translated version

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Version 1.1

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Abstract

The "Self-Assessment for Teachers on Professional Knowledge of Digital Media Literacy in Inclusive and Digital Learning Environments" (Meidl) is an instrument designed to measure pre-service special education teachers' knowledge across the seven dimensions of the Technological Pedagogical Content Knowledge (TPACK) framework (Koehler et al., 2013). It extends the original TPACK model by integrating digital literacy as content knowledge and inclusive teaching as pedagogical knowledge, thereby addressing the key competencies required for inclusive and digitally supported teaching practices. The questionnaire enables the identification of individual strengths and areas for development within and across the core and intersection dimensions of TPACK. Initial validation with pre-service teachers at the beginning of their studies confirmed the instrument's theoretical structure and its applicability for large-scale assessments in teacher education. The present document provides the complete translated questionnaire (see also the original in German language: Jungjohann, 2024) including all items and background information on its conceptual foundation. The Meidl self-assessment is published open access and can be used freely for research and development in teacher education and related fields under the CC BY-SA license.

Keywords

digital literacy, inclusion, pre-service teacher, self-assessment, special education, teacher education, TPACK model

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Version

The current version 1.1 comprises 51 items and is an English translation of the original German version (Jungjohann, 2024). The initial, unpublished version 0.1 comprised 54 items. The first pilot study with N = 255 teacher training students for special education (97 % in their first semester of university, October 2023) revealed psychometric anomalies in three items, which were removed. Version 1.1 has since been used in its current form for scientific and feedback purposes. The underlying evaluations can be found under the following citation:

> Jungjohann, J. & Kunina-Habenicht, O. (Jun. 2024). *Selbsteingeschätztes Wissen über schulische Medienkompetenzen von Lehramtsstudierenden der Fachrichtung sonderpädagogische Förderung* [Vortrag]. AESF Frühjahrestagung, Zürich, Schweiz. https://doi.org/10.17605/OSF.IO/MVZ7N

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References

Jungjohann, J. (2024). *Digitale Bildung aus inklusiver und sonderpädagogischer Perspektive.* https://doi.org/10.17877/DE290R-24289

Jungjohann, J. & Kunina-Habenicht, O. (Jun. 2024). *Selbsteingeschätztes Wissen über schulische Medienkompetenzen von Lehramtsstudierenden der Fachrichtung sonderpädagogische Förderung* [Vortrag]. AESF Frühjahrestagung, Zürich, Schweiz. https://doi.org/10.17605/OSF.IO/MVZ7N

Koehler, M. J., Mishra, P., Akcaoglu, M. & Rosenberg, J. M. (2013). *The technological peadagogical content knowledge framework for teachers and teacher educators*. ICT integrated teacher education: A resource book, 2–7.

Overview of the dimensions with items and item codes

Note: An inclusive understanding is assumed for all items. An inclusive learning group includes learners with and without disabilities. All learners are always involved in the learning process, regardless of performance level, special educational needs, gender, background, or other characteristics.

Pedagogical knowledge (PK) in inclusive teaching	
PK01	I can take diagnostic results on the learning status and learning progress into account when making pedagogical decisions.
PK02	I can assess learning development and performance on the basis of criteria-based, social, and individual reference norms.
PK03	I can teach adaptively by differentiating my lessons and adjusting them to meet and support the current learning goals of all students.
PK04	I can design my lessons in such a way that they are appropriate for all students to learn on a common subject.
PK05	I can use evidence-based support measures in my teaching.
PK06	I can evaluate the effectiveness of my support measures.
PK07	I can support the social participation of all students (e.g. through a positive classroom climate, didactic approaches).
PK08	I am familiar with strategies to prevent disruptions in the classroom.

Content knowledge (CK) as digital literacy	
CK01	I am familiar with theoretical models of school digital literacy.
CK02	I can demonstrate the variety of digital technologies that are relevant for basic digital education in schools.
CK03	I have sufficient knowledge of the legal basis of data protection in schools.
CK05	I am familiar with the concept of gamification.
CK06	I am familiar with various augmented reality (AR) and virtual reality (VR) applications in the field of education.
CK08	I am familiar with the possibilities of various assistive technologies that enable people with disabilities to access digital resources.
CK09	I can make digital learning content accessible.

Pedagogical content knowledge (PCK) for acquiring of digital literacy in inclusive teaching	
PCK01	I can teach digital literacy skills, including basic IT skills, to inclusive learning groups.
PCK02	I can raise awareness in inclusive learning groups about the dangers and risks (e.g., data protection, addiction) associated with the use of digital technologies and the internet.
PCK03	I can design inclusive lessons in which all students critically reflect on digital technologies together.
PCK04	I can design inclusive teaching in which all students acquire strategies for designing digital and accessible learning content.
PCK05	I can offer inclusive learning groups the opportunity to experience the importance of digital assistive technologies for school learning and everyday life.
PCK06	I can offer inclusive learning groups the opportunity to actively experience the effects of gamification.
PCK07	I can offer inclusive learning groups the opportunity to actively experience the effects of augmented reality (AR) and virtual reality (VR) applications.

Technological knowledge (TK)	
TK01	I can solve my own technical problems with software and hardware.
TK02	I can learn technologies easily that are relevant to me.
TK03	I keep up with important new technologies (e.g., ChatGPT, Apple Vision Pro) and their applications.
TK04	I am familiar with a lot of different technologies used in both leisure and work contexts.
TK05	I have the technical skills I need to use technology that is relevant to me.
TK06	I have had sufficient opportunities to work with different technologies that do not belong to me.
TK07	I can organize my digital data (e.g., sorting, saving, and retrieving).
TK08[1]	I can code simple programs in at least one programming language.

Technological content knowledge (TCK) for acquiring digital literacy	
TCK01	I can create digital and technology-supported learning environments for the acquisition of digital literacy skills.
TCK02	I can select a wide range of programs and apps (e.g., creating educational games, explanatory videos, etc.) for the acquisition of digital literacy skills for specific target groups.

TCK03	I am familiar with digital and technology-supported learning opportunities for the acquisition of basic computer skills.
TCK04	I can raise students' awareness of problematic media use, cyber violence, and cybercrime through the use of digital technologies.
TCK05	I can explain the benefits of digital technologies for acquiring digital literacy skills.
TCK06	I can use digital technologies (e.g., smartphones with voice control) as assistive technology.
TCK07	I can assess the accessibility of digital learning materials (e.g., gamified learning apps, VR applications, PowerPoint presentations) using technical aids.

Technological pedagogical knowledge (TPK) in inclusive teaching

TPK01	I can carry out and evaluate school diagnostics digitally and with the support of technology.
TPK02	I can use digital technologies to assess school performance based on different reference norms.
TPK03	I can use digital technologies to provide students with learning opportunities that best fit their individual learning goals.
TPK04	I can prevent interruptions caused by disruptive student behaviour during digitally supported learning times.
TPK05	I can independently and promptly resolve technical issues during digitally supported learning sessions.
TPK07	I can use digital technologies to evaluate the effectiveness of my learning environments and support measures.
TPK08	I can explain how the use of digital technologies influences students' learning.
TPK09	I can use digital technologies to support social participation in inclusive lessons.
TPK10	I only use digital technologies whose learning effectiveness has been scientifically validated.

Technological pedagogical content knowledge (TPACK) for acquiring digital literacy in inclusive teaching

TPACK01	I can use digital technologies to create opportunities for inclusive learning groups to acquire digital literacy skills.
TPACK 02	I can combine my technological knowledge, my content knowledge in digital literacy, and my inclusive pedagogical knowledge to create an effective and disruption-free learning environment.
TPACK 03	I can use digital technologies to diagnose the learning status of students' digital literacies.

TPACK 04	I can use digital technologies to diagnose the development of students' digital literacies.
TPACK 05	I can design digital learning environments where all students acquire common digital literacies and then discuss them.

Note. [1]Item TK08 is not part of the scale and is not included in the dimensional structure of the questionnaire. The item is only used for qualitative questioning about which programming language the pre-service teachers have learned. The qualitative questioning takes place as soon as respondents have given a rating of 2-5.

Item categories:
1 = does not apply at all
2 = rather does not apply
3 = apply partly
4 = rather applies
5 = fully applies