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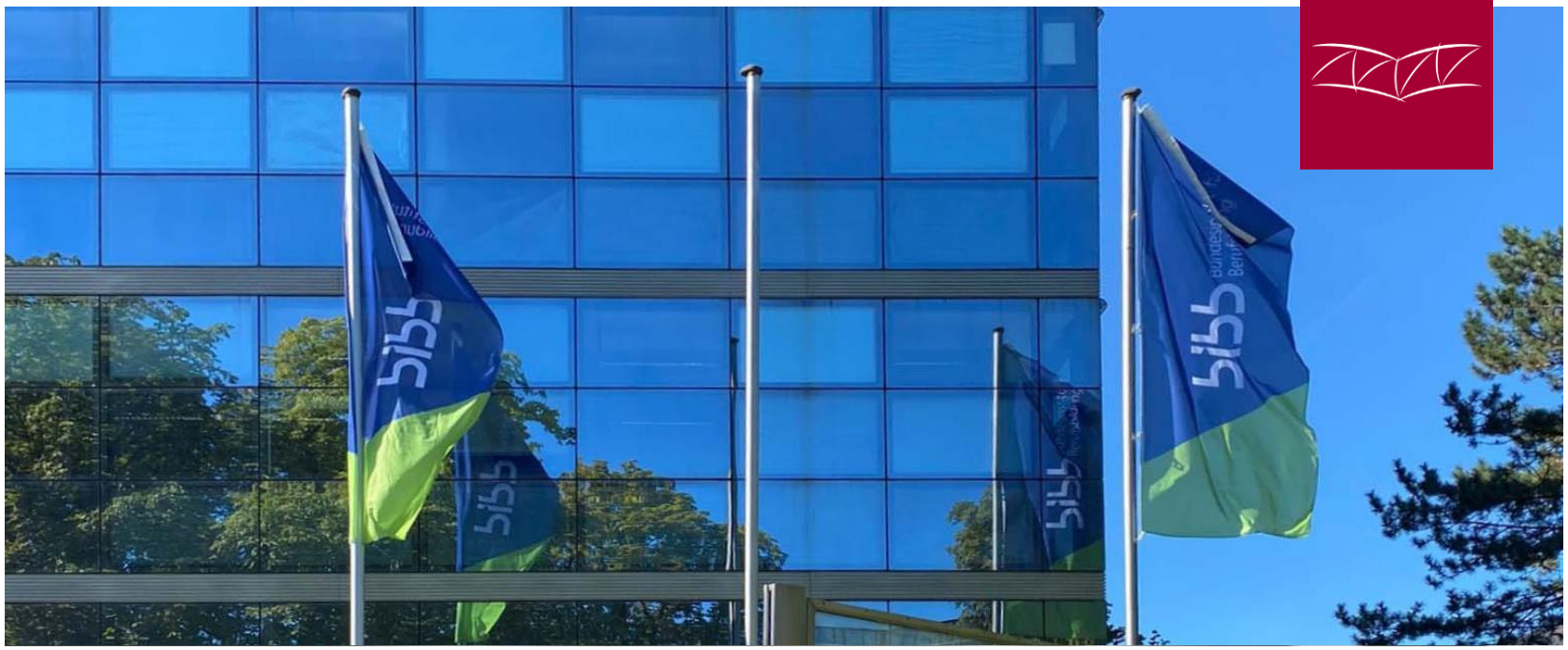

Digital competences in VET classrooms: Intrinsic motivation as a facilitator of digital skills

Laura Getz & Dr. Daniel König - Stockholm International Conference of Research on VET (19.05.2026)

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Zentrum für Digitalisierungs- und Technologieforschung der Bundeswehr

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Overview

- Digitalization and work/life
- Self Determination Theory (SDT)
- Research project KoDiA: Questions and Methods
- Results
- Summary

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Ongoing digitalization of work and life

Digital competences …

- **are neccessary for a participation in work and life.**
- **need to be available to everyone.**

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Deci & Ryan:

Self-Determination Theory

& psychological needs

Promoting self-determined motivation

The following basic psychological needs determine human behaviour:

- **Need for autonomy**
- **Need for competence**
- **Need for social relatedness**

→ Intrinsic motivation

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Project Design

Research Questions

- How do teachers at vocational schools view the digital skills of vocational students?

- What interests and needs do vocational students have when it comes to the use of digital media in the classroom and their participation in a digitalized world?

Methods

Mixed methods approach:

- four exploratory focus group discussions 20 VET teachers in Hamburg, Germany
- Online survey with 2,329 vocational students in Hamburg, Germany

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Selected results from focus group discussions with VET teachers

Need for autonomy

- students not used to independent work
- teacher promote autonomy
- large variety in devices and software

Need for competence

- little previous digital knowledge
- developing routines through repetition and practice
- independent and need-based use of digital tools

Social relatedness

- mutual student support
- teamwork
- learning from mistakes
- respectful interaction among students and between students and teachers

Overall: consideration of basic psychological needs by teachers resulting in self-determined student motivation

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Online Survey

Describing the **sample group** …

- Survey sent out in winter 2023/2024
- VET students in dual VET
- 2,329 completed questionnaires
  (about 8.3% of all VET students in Hamburg)
- Distributed through VET schools
  → no random sample

Participant data:

- average age: 21 years
- 34% women, 64% men, 2% third gender
- 45% high school diploma/academic secondary school, 32% secondary school,
  22% first general school leaving certificate

→ equivalent to overall distribution of school certificates

- ~ 50% 1st, 30% 2nd year, 20% 3rd year
- students from various VET programmes

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Appendix B

25-item scale to measure ICT-SC in German (ICT-SC25g) and English (ICT-SC25e)

Facet	Code	German scale version – ICT-SC25g	English scale version – ICT-SC25e
Instruction		Im Folgenden werden Ihnen Fragen zum Umgang mit digitalen Systemen gestellt. Unter digitalen Systemen versteht man alle digitalen Anwendungen (z.B. Software oder Apps) sowie alle digitalen Geräte (z.B. Computer oder Smartphone).	In the following, you will be asked questions about the handling of digital systems. Digital systems are all digital applications (e.g., software or apps) and all digital devices (e.g., computers or smartphones).
General ICT-SC	SCGL1	Ich kann digitale Systeme bedienen.	I can operate digital systems.
		…steme zu nutzen.	I am good at using digital systems.
		…n das Nutzen digitaler Systeme geht.	I quickly learn when it comes to using digital systems.
		…eue digitale Systeme zu gewöhnen.	It is easy for me to get familiar with new digital systems.
		… Umgang mit digitalen Systemen.	I have always been good at using digital systems.
		…Medienformate (Text, Bild, Video, Ton, …)	I can communicate information through various media formats (text, image, video, sound …).
		…en.	I am good at collaborating with others through digital systems.
		…en über digitale Systeme zusammenzuarbeiten.	I quickly learn which communication medium (text, audio, video, sound) has to be used for editing a task.
		…ommunikationsmedium (Text, Audio, Video, …r Aufgabe zu wählen ist.	It is easy for me to spread information through digital systems.
		…onen über digitale Systeme zu verbreiten.	I can evaluate the quality of digital data, information, and content I use.
		…n mir genutzten digitalen Daten, Informationen	I am good at assessing the relevance of digital data, information, and content.
		…ız digitaler Daten, Informationen und Inhalte zu	I quickly learn how and where digital data, information, and content have to be stored.
		…o digitale Daten, Informationen und Inhalte	It is easy for me to find digital data, information, and content to process a task.
		…ten, Informationen und Inhalte zur Bearbeitung	I can create digital data, information, and content on my own.
		…rmationen und Inhalte selbstständig erstellen.	I am good at developing digital data, information, and content.
		…e Daten, Informationen und Inhalte	I quickly learn how to interpret digital data, information, and content.
		…terpretieren digitaler Daten, Informationen und	It is easy for me to prepare digital data, information, and content for others.
		…aten, Informationen und Inhalte für andere	I can protect digital systems through security measures.
		…urch Sicherheitsmaßnahmen schützen.	I am good at protecting private data when using digital systems.
		…ten im Umgang mit digitalen Systemen zu	…owledge about security …responsibly.
		…unzugehen.	
Solve problems	SCSP1	Ich kann bei auftretenden Problemen mit digitalen Systemen deren Funktionsfähigkeit selbstständig wiederherstellen.	I can restore the functionality of digital systems in case of problems without the help of others.
	SCSP2	Ich bin gut darin, auftretende Probleme mit digitalen Systemen selbständig zu lösen.	I am good at solving problems of digital systems without the help of others.
	SCSP3	Ich lerne schnell, inhaltliche Probleme mit Hilfe von digitalen Systemen zu beheben.	I quickly learn to solve content problems with the help of digital systems.

I am good at using digital technologies.

I am good at collaborating with others through digital technologies.

I am good at recognizing relevant digital data, information and content.

I am good at further developing digital data, information and content.

I am good at protecting private data when using digital technologies.

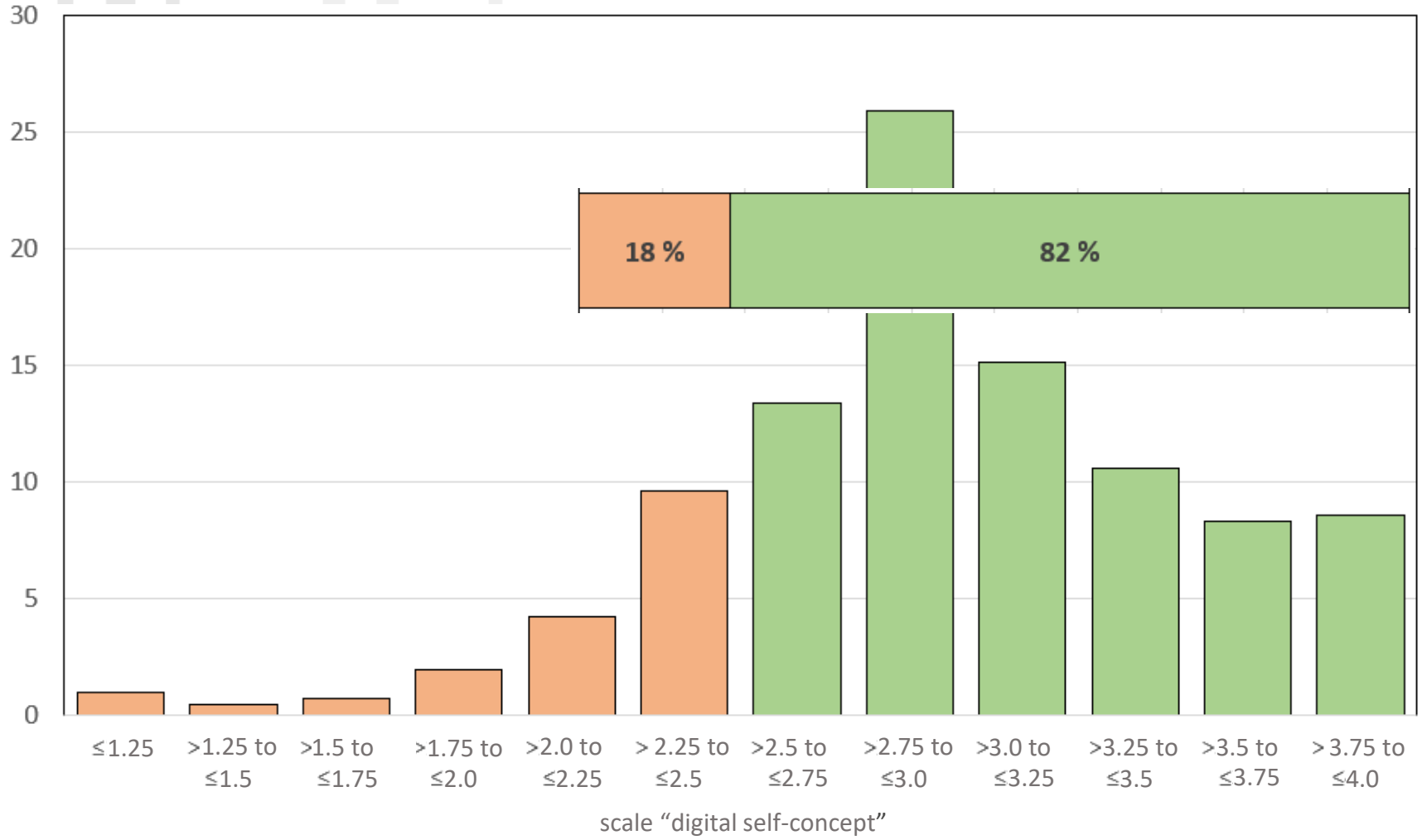
I am good at solving trchnical problems with difital technologies independently.

I am able to critically asses my use of media (e.g. gaming, social media, videos).

It is easy for me to get used to new digital technologies.

General digital self-concept

(cf. Schauffel et al. 2021)



n = 2,309, $\bar{x}$ = 3.0 (scale: 1-4)
Cronbach‘s Alpha = .91

negative positive

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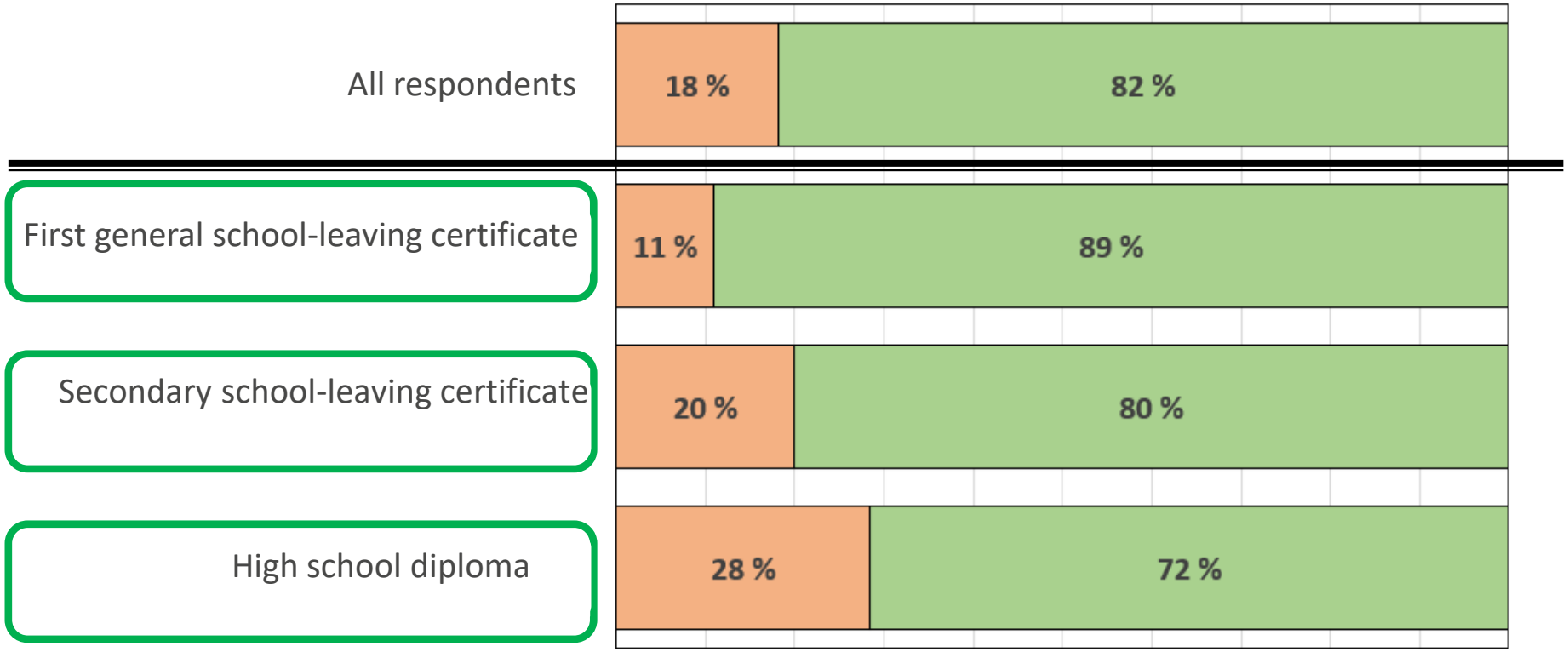
School certificates and general digital self-concept

(cf. Schauffel et al. 2021)



general: n = 492, $\bar{x}$ = 2.9
secondary: n = 712, $\bar{x}$ = 3.0
high school: n = 1,009, $\bar{x}$ = 3.1
all respondents: n = 2,309, $\bar{x}$ = 3.0
(scale: 1-4)

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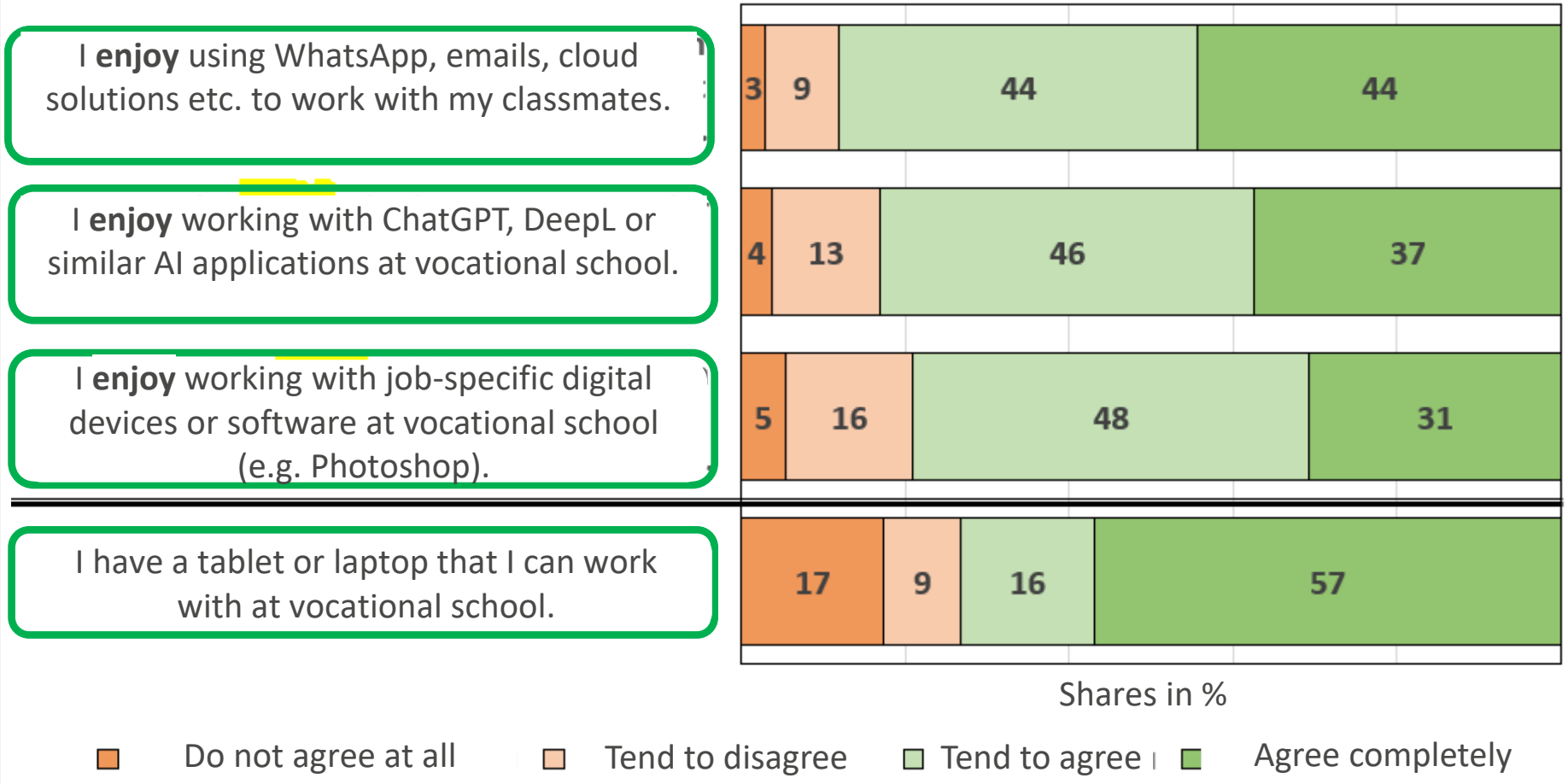
Use of digital technologies in vocational schools



n = 2,123, 1,070, 768 and 2,329

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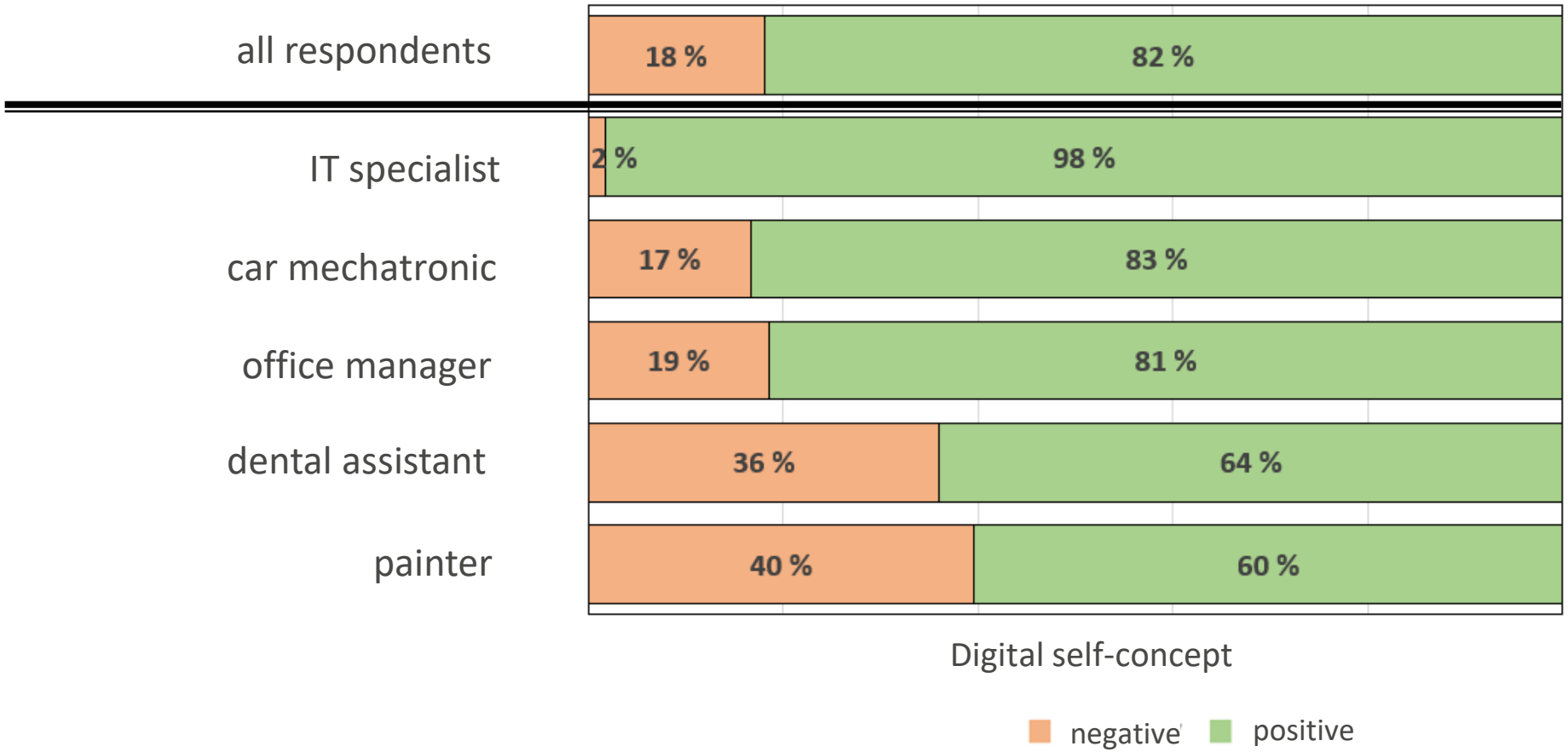
VET training course and general digital self-concept

(cf. Schauffel et al. 2021)



IT specialists: n = 55, $\bar{x}$ = 3.4; car mechatronics: n = 341, $\bar{x}$ = 3.0; office managers: n= 172, $\bar{x}$ = 3.0; ZFA: n = 61, $\bar{x}$ = 2.7; painters: n = 53, $\bar{x}$ = 2.7; all respondents: n = 2,309, $\bar{x}$ = 3.0; scale: 1-4)

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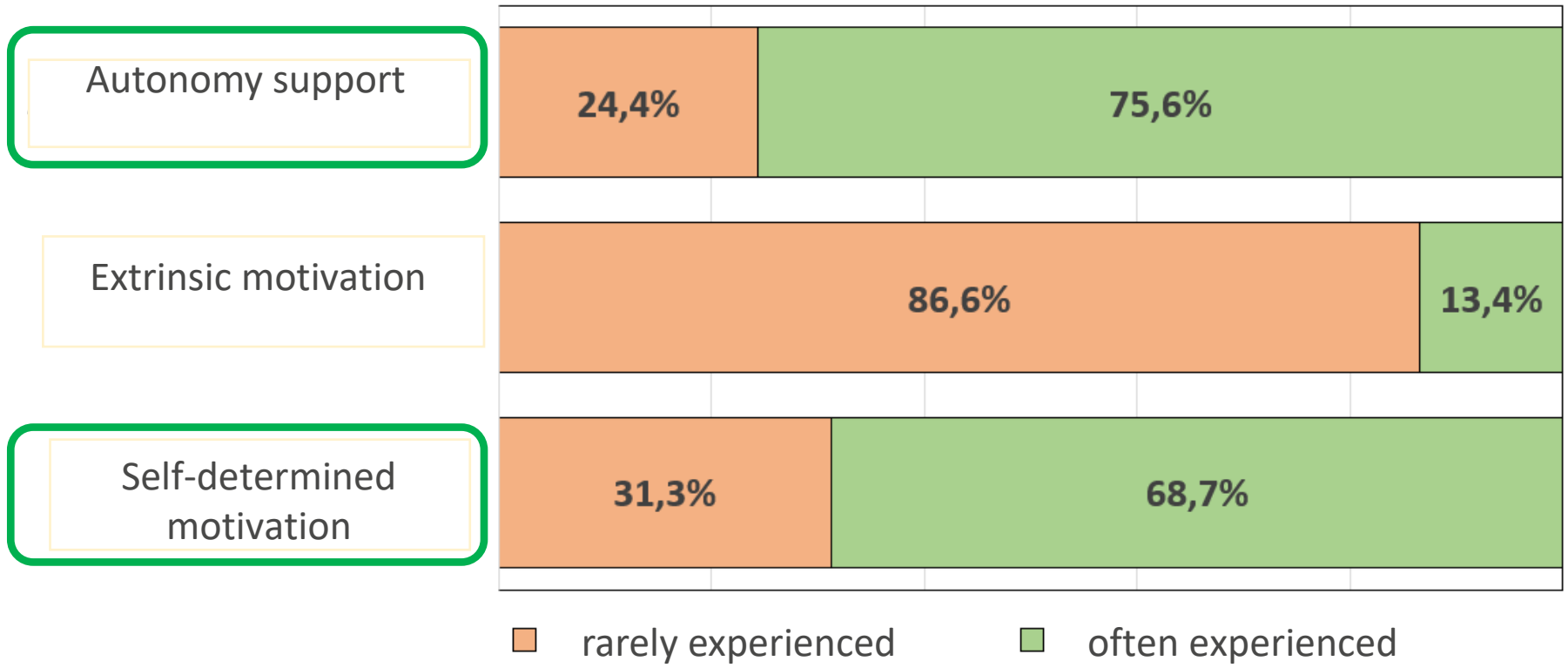
Self-determination Theory



n = 2,311, 2,321, 2,322
means $\bar{x}$= 2.9; $\bar{x}$= 1.9; $\bar{x}$=2.9
(scale: 1-4)

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Influencing factors on digital competence of VET students?

VET teachers' views in group discussions:

- School leaving certificate
- Experiences with digital technologies in school
- parental home: availability of devices, support etc.

Theoretical assumptions of the SDT

- Experiencing autonomy, competence, social relatedness

➢ … lead to self-determined, autonomous motivation

Influencing factors on digital self-concept of VET students?

Results of the online survey:

✓ School leaving certificate
✓ Intrinsically-motivated experiences with digital tools in private life and VET school
✓ Availability of tablet/laptop

✓ Autonomy support through VET teachers
➢ … leads students to report self-determined autonomous motivation

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Results

Theoretical assumptions confirmed (cf. Deci & Ryan 2008):	What does this mean for VET classrooms?
Experiencing autonomy, competence and social relatedness in VET classrooms **promotes self-determined and instrinsically motivated learning** with digital technologies.	The **use of familiar digital technologies in VET training contexts** (e.g. WhatsApp, cloud solutions, AI applications, job-specific technologies, tablets) and the use of familiar platforms in VET classrooms (such as YouTube, podcasts, memes, tiktoks etc.) increases motivation, as well as students‘ digital self-concepts.
Intrinsically motivated experiences with digital technologies & higher school leaving certificates have a positive influence on the digital self-concept.	**VET teachers** are confronted with a **variety of digital competence levels and frequently changing digital tools**. >> Only few VET teachers are currently promoting digital competences in VET classrooms.
Overall insights:	**Promoting intrinsic motivation** in VET classrooms can help students **acquire digital competences**.

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Thank you.

We are looking forward to your questions and comments.

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