



Current Challenges in the Use of Digital Media in Vocational Training in Germany

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The Complexity of the Concept of Education

Let me start with a hypothesis:

The current digital media challenges that we currently have in TVET are related to the different uses of the concept of education.

The Complexity of the Concept of Education

The German term "Bildung" (~ education) is used in at least three ways:

- in the sense of training – someone has obtained a formal degree and can thus prove a certain qualification,
- in the sense of general education – someone is considered "educated",
- in the sense of an attitude towards oneself and the world, which is made accessible again and again through processes of reflection.

The Complexity of the Concept of Education

Complexity of
the concept
of education

Vocational training in the context of educational policy concepts

- Training, further training and further education

General education

- General education from the perspective of everyday life /this is about the knowledge a person possesses

Educational education theory

- Education means an attitude towards oneself and the world/focus is on the subject and his or her „disposition (...) about him- or herself“ (Heydorn)

Educational Education Theory

Structural Education Theory

- By adopting this attitude towards themselves and the world, people actively contribute to dealing with social challenges.
- Structural education theory addresses these connections:
 - The loss of clear value and norm systems results in a pluralization of views on oneself and the world.
 - This pluralization generates spaces of uncertainty which the individual must fill by reflecting on experiences.
 - The individual must therefore search for new rules and categories for new, previously unknown phenomena.

Educational Education Theory

Structural Education Theory

- Winfried Marotzki's theory (following the reflections of Bateson) distinguishes between learning processes and educational processes.
- Thus it is possible for him to distinguish between
 - A) learning processes, as addressed in education, and
 - B) education (attitude towards oneself and the world).
- He distinguishes 4 levels:
 - learning I
 - learning II
 - education I
 - education II

Structural Education Theory



Education II

means to redefine oneself in comparison with the explored new/foreign worlds. Education II is about repositioning oneself in the system of different worlds. (If A was completely new and I have explored these new phenomena for myself as a new world, what will this experience do to me? What do I learn for myself from the confrontation with another/new world?)

Education I

means that a stimulus can be seen in a completely new way. Education I is about exploring foreign worlds and the comparison with one's own world. (A is completely new. How can the phenomenon be described? What is new about this in contrast to the experiences I have made within my own world so far?)

Learning II

means that the person can distinguish the meaning each stimulus has in the concrete situation. (If A, then B or C.)

Learning I

is stimulus-reaction learning: A concrete stimulus is linked to a concrete reaction. (If A, then B.)

Digital Education in the conflicting relationship

Digital education in the conflicting relationship of educational policy, societal needs and educational theory

- In the digital age, finding an attitude towards oneself and an orientation in the world can also take place within digital worlds.
- An important prerequisite for this, however, is that the digital world as such has been explored in the first place.

Digital Education in the conflicting relationship

Digital Natives vs. Digital Immigrants


- The young generation of today's trainees was born into the digital world. This generation of Digital Natives must be distinguished from the generation of Digital Immigrants.
- For the generation of Digital Immigrants the digital world was and still is a new world they have to deal with. With regard to digital media there are fundamentally different attitudes between the two groups:
 - Digital Natives show a technology-focussed approach in all areas of life (Riederle 2014).
 - Digital Immigrants are rather sceptical about digital media and compare digital media in terms of advantages and compatibility in the respective areas of application (Riederle 2014).

Insight into a project


Confrontation of prospective teacher with media use in vocational schools

- What is the current situation regarding the use of digital media in vocational training?
- Which media do prospective teachers at vocational schools encounter when they sit in on lessons during their internships?


Digital Education in the conflicting relationship



At school,
digital
immigrants
teach digital
natives?!



In education,
digital
immigrants
teach digital
natives ?!



At the
university,
digital
immigrants
teach digital
natives?!



Insight into a project

Confrontation of prospective teacher with media use in vocational schools

- Since 2014, teachers for health and nursing professions have been trained at Magdeburg University.
- These students are required to draw up observation protocols on the lessons they sit in during their school internships.

Insight into a project

Confrontation of prospective teacher with media use in vocational schools

- We have a total of 252 observation protocols that show very clearly which media are used in teaching.
- When counting, a distinction was made between
 - analogue media and digital media and
 - active and passive use of analogue and digital media

Insight into a project

The distinction between active and passive use results from the following considerations:

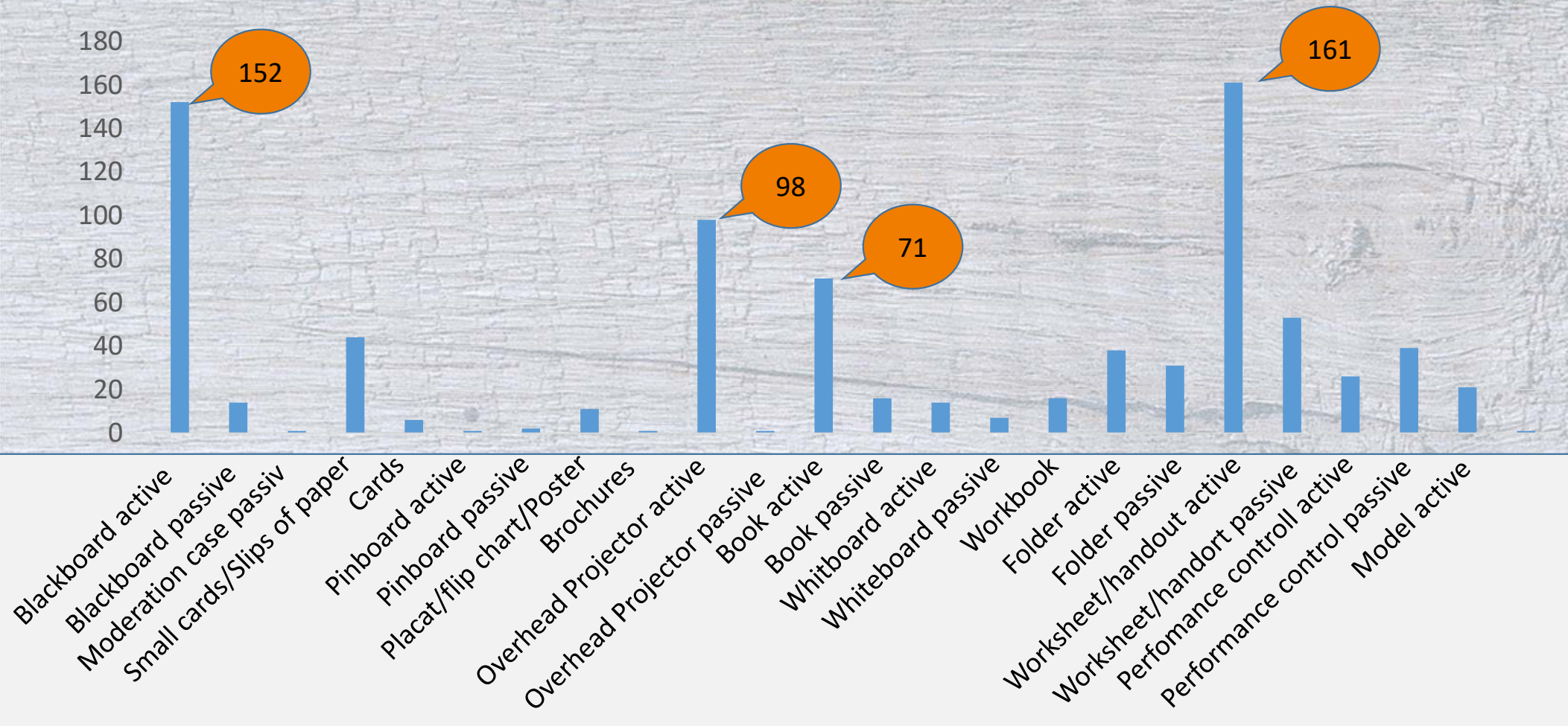
- At first, it was not always possible to clearly count the media teachers planned to use and finally actually did use.
- The aim of each protocol evaluation was to show the number of media planned by the teacher and the number of media changes.
- With this project, it became apparent that teachers could use a medium, such as the blackboard, to write on it or just as a magnetic presentation surface for other media. In order to uncover these differences, the media were divided into active and passive.
- So, if the blackboard is written upon, it is used actively.

Insight into a project

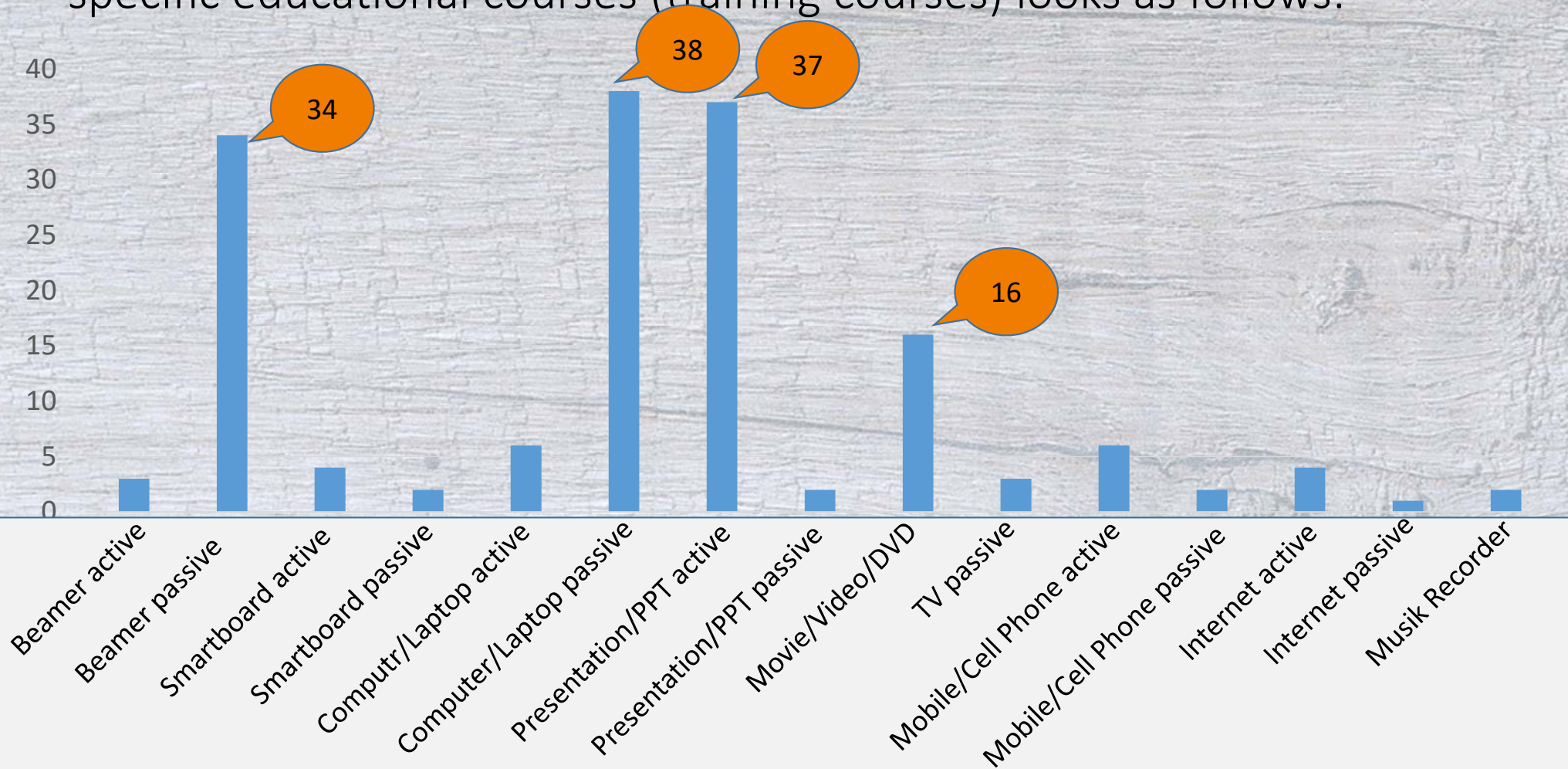
The distinction between active and passive use results from the following considerations:

- If, on the other hand, it is only used as a magnetic background for another medium in the foreground, such as pinned cards, it is only used passively.
- The same applies to the Smartboard and the PowerPoint presentation. If the Smartboard is only used as a presentation area for another medium in the foreground, it is counted as passive.
- If, on the other hand, the Smartboard is used, for example, as a blackboard, the user actively works with the Smartboard and this is then evaluated accordingly.

The frequency distribution of analogue media in all health and nursing specific educational courses (training courses) looks as follows:



The frequency distribution of digital media in all health and nursing specific educational courses (training courses) looks as follows:



Insight into a project

Comparison between the number of used analog and digital media

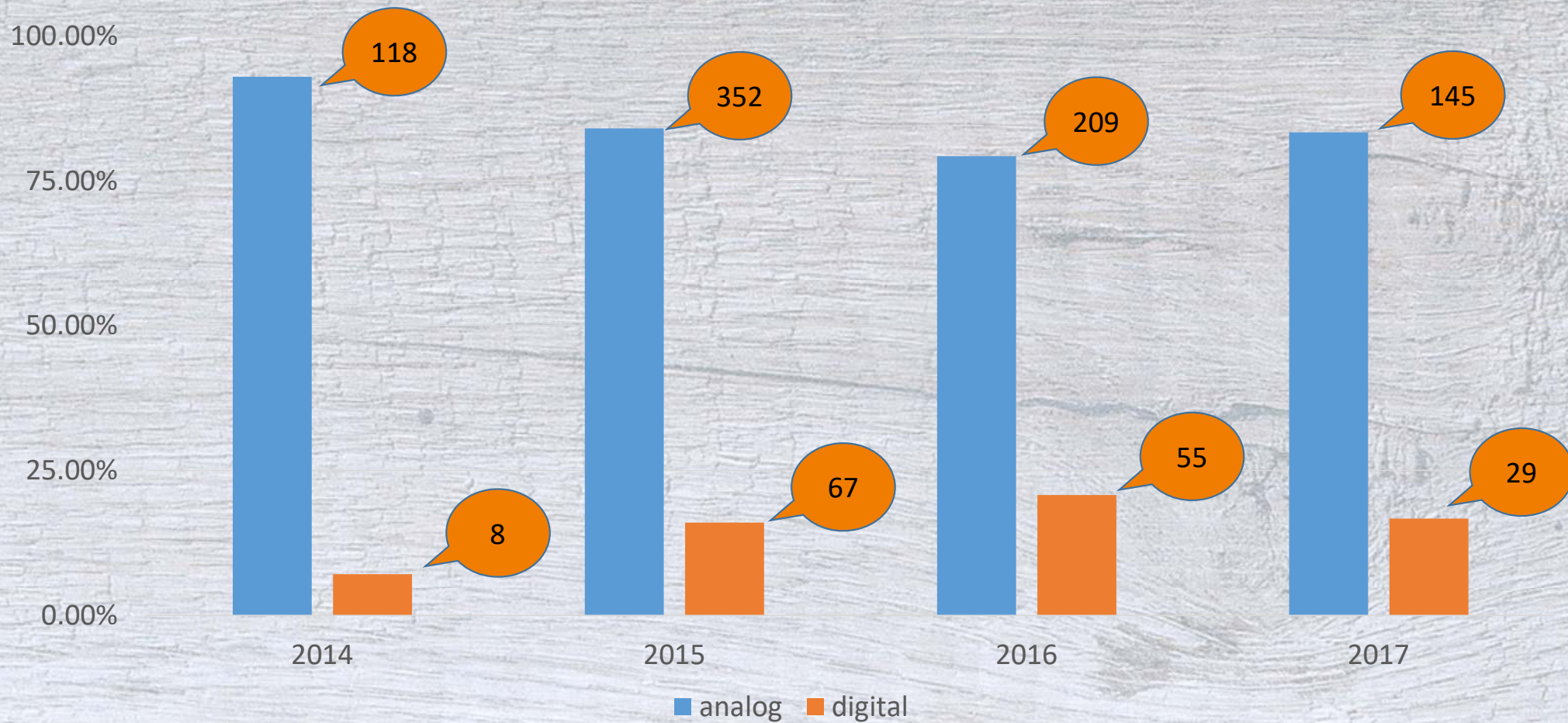
- It is apparent that the percentage of digital media used is significantly lower than that of analogue media.
- And we still know little about how the learning effects of using analog and digital media are in the classroom.
- There is still a lot to do from a quantitative as well as a qualitative research perspective.

Insight into a project

Comparison between the number of used analog and digital media

- If we look at media usage in the course of 2014 to 2017, there are no significant differences here either.

Media Usage in the Course of 2014 to 2017: The observation protocols included:

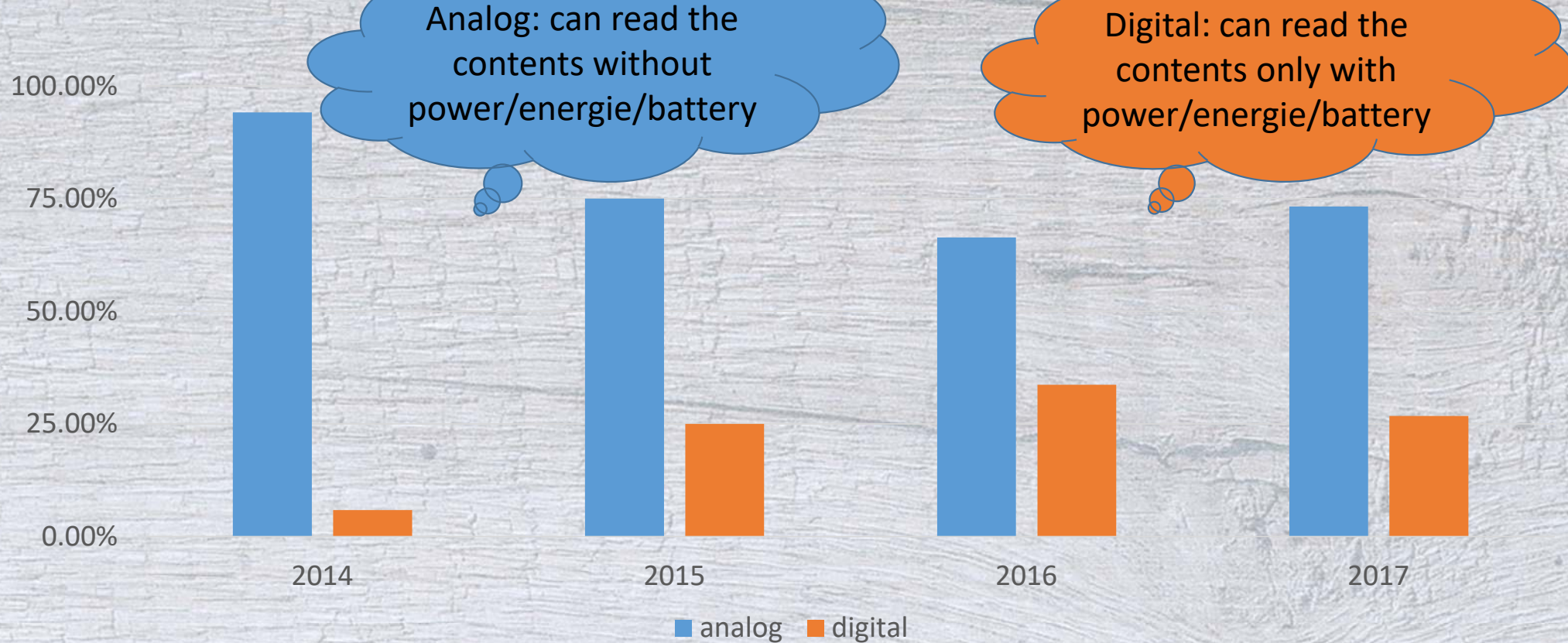


The Complexity of the Concept of Education

General education

- Another differentiation was made regarding the visualization options teachers use to convey content in lecture-style teaching.

Visualization Optionsteacher use to Convey Content in Lectur-Style Content



Blackboard; Flipchart; OVP; Whiteboard

Beamer; Smartboard; Presentation; TV

The Complexity of the Concept of Education

General education

- Here it becomes apparent that teachers hardly use any digital media to convey learning content. This leads to the question why digital media are currently used significantly less than analogue media.

- Is this due to
 - the technical equipment of the schools,
 - the media skills on the part of teachers, or
 - the media skills of the trainees?

Current challenges in the use of digital media in vocational training in Germany

Current challenges in the use of digital media in vocational training in Germany

- 1. Focusing on the rational use of digital media instead of the experience of digital worlds to enable educational processes**
- 2. Digital Immigrants teach Digital Natives**

Current challenges in the use of digital media in vocational training in Germany

1. Focusing on the rational use of digital media instead of the experience of digital worlds to enable educational processes

- According to education policy demands, digital media should be used within vocational training.
- Nevertheless, in many cases the intention of this educational policy demand is not clear. Sometimes there are statements to use digital media for their own sake.
- In vocational training, however, a distinction should be made between the use of digital media to
 - optimize learning processes
 - acquire digital media literacy
 - get to know digital media tools that are important in the respective professions,
 - or for educational processes.

Current challenges in the use of digital media in vocational training in Germany

1. Focusing on the rational use of digital media instead of the experience of digital worlds to enable educational processes

Media can be used for educational processes or for learning processes.

- Using digital media to get to know foreign worlds.
 - digital media as a method in the educational process
- Using digital media to get to know the digital world
 - digital media as an object of learning to enable educational processes
- Use of digital media to create methodological variety in teaching
- Use of digital media as a replacement for analogue media

Current challenges in the use of digital media in vocational training in Germany

2. Digital Immigrants teach Digital Natives

- In today's vocational training we are dealing with young people and young adults who belong to the generation of Digital Natives. From early childhood, they grew up with digital media.
- Thus we find ourselves in a unique situation in contemporary history, in which Digital Immigrants are fulfilling educational tasks for Digital Natives. And this happens in several respects or at several places of learning:
 - at home
 - in general schooling
 - at vocational schools
 - at university

Current challenges in the use of digital media in vocational training in Germany

2. Digital Immigrants teach Digital Natives

- Throughout their learning biographies, the Digital Natives are taught by Digital Immigrants.
- Even the future generation of teachers, who belong to the Digital Natives, is still mainly trained by Digital Immigrants at university.

Current challenges in the use of digital media in vocational training in Germany

2. Digital Immigrants teach Digital Natives

- Within teacher education at universities, we are also faced with the challenge that media education is a topic in all three focal points in which prospective teachers are trained:
 - vocational pedagogy
 - professional specialties (e.g. health and nursing, economics and administration or one of the numerous technical specialisations)
 - general education teaching subject.
- All three areas are confronted with the necessity of imparting media competence to students of teaching professions.
- However, an overarching media concept to cover all major fields of study is not yet available.



Thank you very much for your attention!

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Projects of the focus “Didactic school and teaching research”

DiMediCa: “Digitalisation processes in training and further education in the health and nursing sector”

- Project Manager: Prof. Dr. Frank Bünning
Prof. Dr. Astrid Seltrecht
Prof. Dr. Michael Herzog
- Duration: 2018/10/01 – 2021/09/30
- Funding: Federal Ministry of Education and Research (BMBF), Germany



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Projects of the focus “Didactic school and teaching research”

DiMediCa: “Digitalisation processes in training and further education in the health and nursing sector”

- Nowadays, digital media promise advantages for users from a wide variety of industries in a number of ways.
- Due to the multifaceted challenges in the field of training and further education in the health and nursing sector, however, it is necessary to examine the conditions for the successful introduction of new digital systems first, prior to developing and introducing such systems, and to formulate the corresponding findings in design guidelines.
- The joint project "Digital Medical Care (DiMediCa) – digitalisation processes in training and further education in the health and nursing sector" is divided into three sub-projects.

Projects of the focus “Didactic school and teaching research”

DiMediCa: “Digitalisation processes in training and further education in the health and nursing sector”

- I am responsible for sub-project 2. It includes the sociological and educational perspective on digital media and examines the conditions for successful teaching-learning environments.
- The question the project focusses on is:
 - Which design criteria must teaching-learning environments
 - have from a teacher’s perspective and
 - from a student’s perspective?

Projects of the focus “Didactic school and teaching research”

Theoretically,
the project is
focusses on:

B1

Nursing and Health Didactic Perspektive

- Concept of Competence
- Concept of Education

B2

Sociological Perspective

- Symbolic Interactionism
- Theory of Communicative Action
- Individualisation Theory

B3

Educational theoretical Perspective/ Perspective of Media Education

- Concept of Education
- Concept of Media Education

Projects of the focus “Didactic school and teaching research”

