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Religion to Go!

Religion in Mobile Internet Environments, Mobile Apps, Augmented Realities and the In-Betweens

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RELab digital

A Project on Religious Education in a Mediatized World

Ilona Nord & Jens Palkowitsch-Kühl

Abstract

Education in general participates in globally occurring medial transformation processes. Religious Education and Didactics, like all other academic disciplines, are challenged to conceptualize and reflect the integration of digitally-networked media in theory and practice. This should happen in at least three dimensions: in learning *with* digital media, in learning *about* digital media, and in the development and practice of a constructive/critical media education. The project is dedicated to the development, testing, and evaluation of learning scenarios in Religious Education classwork, and also to facilitating an exchange with sites of religious education beyond the school context.

Apart from didactic and discipline-specific approaches, this paper will show two possible sequences: First, virtual realities (VR) augmented by representations of physical reality, thus enabling virtual expeditions, and second, physical realities augmented by virtual overlays (AR), creating experiential spaces in existing locations or new, non-location-bound, learning sites.

Keywords

education, didactics, virtual reality, augmented reality

1   Introduction

When the first computers found their way into German schools in 1972, by way of the new subject of Informatics, teachers of other subjects probably did not ask themselves the question how they could be utilized didactically in their own fields. There only were a few pioneers, open-minded and technophile educators, and few schools were actually equipped with computers. The focus of teaching and learning processes was on knowledge about the operating principles of the hardware and, later, on advanced programming languages. In time, computers were also used as support in

tasks such as writing, ciphering, and presenting. Not just the understanding of computer languages but the use of computers for electronic data processing (e. g. text, image, or numeric data) became part of Informatics classes, which sometimes were referred to as Basic Education in Information Technology (German: Informationstechnische Grundbildung/ITG) from the mid-1990s onward. Usually, these subjects were taught separately, respectively, they were affiliated with the subject of Mathematics. Since then, a great deal has changed, so that today, in 2017, computers have moved into quite a few other disciplines, even if primarily into the STEM subjects – Science, Technology, Engineering, and Mathematics – in order to make use of the opportunities they provide. Although other disciplines integrate computers into their teaching, they are mostly used for research, writing, and presenting. Yet the questions regarding computer integration in 2017 differ significantly from those of 1972. Today, teachers teach and students learn not only about computers, their language(s), and their mathematical uses – in order to open up the field a little more widely, we had better not speak restrictively of 'computers', but rather of *Information and Communication Technology (ICT)* – but by and about ICT. Social aspects, such as the mediatization thesis (Krotz 2001; *mediatization* especially in an international religious context cf. Lundby 2014, Lövheim 2014, Hjarvard/Lövheim 2012), were taken into account, since we can safely assume that the transformation processes in the area of communication technologies and the changes in our society and culture are running parallel with one another.

The traditional contents of the subjects in the Humanities do not become lost in this development, yet they must be observed in their new forms of appearance and expanded structures. Looking at the example of a classic theme of Religious Education – the complex consisting of dying, death, mourning, and burial – we may recognize that they also take place virtually or in augmented form (Klie and Nord 2017). These modifications are to be identified and investigated specifically. The access to religions, the so-called 'market of religions', also finds large *fora* and a wide public through the new (communication) technologies (Campbell 2012a). On the *Internet*, there is a suitable space for every preference. Teachers and students must be able to learn to perceive and interpret these platforms and processes. An (inter)religious power of judgment, or one capable of accommodating plurality, must be schooled and trained accordingly.

As Religious Education sees itself as lifeworld- and subject-orientated, the experiential spaces and the perspectives of the learners must always be taken into consideration. In a 'mediatized' world, this means that the social and cultural transformations in the students' lifeworlds, due to new (communication) technologies, are scientifically sounded and academically reflected in terms of the relevant discipline.

Lifeworld-relevant subject areas must find their way into digital teaching and learning scenarios, in order to facilitate a kind of learning that is *about* media and that helps in the formation of critical media education (Ess 2015, 2016). These scenarios then take up different methodological

settings which support learning *with* digital media: digital storytelling, mobile gaming using the *Actionbound* application, the integration of virtual spaces into the classroom via the application of virtual expeditions and digitally-interactive e-books, so-called 'id-books' (cf. Hopkins 2016). Methods draw on mobile terminals (e.g. tablets, smartphones, etc.) which can make full use of the possibilities of digitally-interactive performance situations and are already firmly anchored in the lifeworlds of the students. Therefore, they constitute authentic tools.

Once applied, however, these scenarios appear in *hybrid* form, which means that conventional teaching and learning methods do not simply vanish but are combined with methods from the areas of the emergent new technologies. Learning and teaching therefore take place in Mixed Realities (Milgram und Kishino 1994), in the form of hybrid methods and learning spaces. One teaching and learning scenario does not merely cover one setting but the most diverse and different Mixed-Reality Methods.
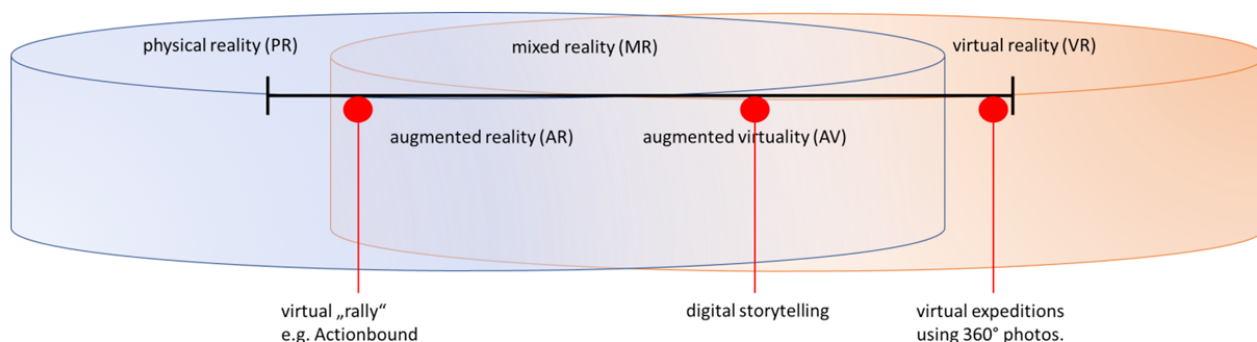
Figure 1: Realities and Methods, based on Milgram und Kishino (1994), our diagram.

Chapter 3 will look at how the settings in these various scenarios are designed, and which digital/didactic guidelines they follow. At first, however, we would like to sketch the origin of the project and the project itself.[1]

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1 A partial project description has already been published in German, in: Nord, Ilona und Palkowitsch-Kühl, Jens (2017): ReLab - digital: Ein Projekt zur religiösen Bildung in einer mediatisierten Welt, in: Zeitschrift für Theologie und Pädagogik (ZPT), Jg. 69, Nr. 3. This paper will describe the individual parts in more detail.

2   Insights: Religious Education in a Mediatized World

The Würzburg "Religious Education in a Mediatized World (RELab digital)" project[2] responds to the demand to develop suitable formats and contents for religious educational processes by way of integrating new technologies, firstly by working out subject-specific and didactic determinations of the relations between Christian religion and media as part of a German-Swedish co-operation (Nord and Zipernovszky 2017a; Nord and Zipernovszky 2017b). In the interest of the fundamentals of Religious Education, the individual disciplines of Christian Theology were also investigated, determining what integral significance media have for them themselves. Christian Theology may be considered one of the first media sciences, as it were (cf. Nord and Zipernovszky 2017a: Chapter 1). Now, secondly, didactic concepts are developed and advanced, teaching and learning scenarios set up, tested, and evaluated. Existing research perspectives in the fields of Religious Education and Practical Theology are already directed towards the interrelations between New Media and religion(s) (cf. Pirner 2004; Nord and Luthe 2014b; Klie and Nord 2016).[3] In the German-speaking context, there have also been individual publications on Religious Didactics which thematize impulses for learning with and about digital media in religious instruction (cf. Pirner 2013; Nord 2014; Haas 2015; Palkowitsch-Kühl 2015, Rosenstock/Sura 2015). A transfer of digitally-networked media into concrete teaching and learning scenarios, however, is still mostly missing so far. The planned project emphasizes aspects of a type of Religious Education which goes beyond the mere impartation of knowledge bases, paying attention to the life and negotiation experiences of students based on existential questions in, by, and with digitally-networked media. Inside the transformation processes of a society that is digitalizing itself, social experiences and their significance particularly for the emotional development of children and juveniles and their processes of value formation are affected by a fundamental change. Intuitive user interfaces as offered by human-computer interaction create spaces of potential, which have to be dealt with in terms of Religious-Education principles and Religion-Didactics concepts already developed somewhere else: In particular, we need to think of *an experience-related* and *discourse-oriented* Religious Education (cf. Streib and Gennerich 2011), which also follows the principle of *Children's*

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2   In collaboration with Religionspädagogisches Zentrum Heilsbronn der Evangelisch-Lutherischen Kirche in Bayern, Religionspädagogisches Institut der Evangelischen Kirche von Kurhessen-Waldeck und der Evangelischen Kirche in Hessen und Nassau, and the Professional School of Education of the University of Würzburg.

3   The project group on "Religion und Religiosität im Kontext medialer Transformationsprozesse der Gegenwart" of Wissenschaftliche Gesellschaft für Theologie that we have founded together with PD Dr. Kristin Merle takes a particular interest in these processes.

.   By no means should it remain unmentioned that Religious Education always endeavors to catch up with the experiential spaces of children and adolescents, pedagogically and practically (cf. e.g. Rosenstock/Senkbeil 2010, Rosenstock 2013), and also observes and reflects the area of interactive media, e.g. computer games (cf. Rosenstock/Schweiger/Spiecker 2013). A systematic building, testing, and evaluating of concrete teaching and learning components that goes beyond this has not yet taken place.

and Youth Theology (cf. Büttner et al. 2014; Zimmermann 2010; Schlag and Schweitzer 2011) in focusing on *just religious instruction* (cf. Grümme and Schlag 2016; Unser and Ziebertz 2015); approaches to be accommodated include *cognitively, affectively and pragmatically formatted perspective change* (Käbisch 2014: 216f.), *Alterity Theory* (cf. Grümme 2012), and the didactic concepts that are *relationship-oriented* (cf. Boschki 2003) and *emotional-value-oriented* (cf. Naurath 2010), *interculturally* and *interreligiously* (cf. Leimgruber 2007) and, naturally, *mediaworld-oriented* (cf. Pirner 2004); although the list will have to be supplemented according to the contexts of the respective learning scenarios, e.g. in the area of *Church History* (cf. Bork and Gärtner 2016), among many others. The plea for a *denominationally co-operative* and *contextual* (cf. Sekretariat der Deutschen Bischofskonferenz 2016; Evangelisch-Lutherische Kirche in Bayern 2016; Lindner et al. 2016) and also *inclusive* (cf. Schweiker 2017) format of a future-oriented religious instruction is supported by the perspective on mediatization. This orientation has already been outlined as part of a concept of Religious Education in a mediatized world (cf. Nord and Zipernovszky 2017a; Nord and Zipernovszky 2017b).

For mediaworld-orientated learning, self-socialization processes (cf. Pirner 2004; Nord and Zipernovszky 2017a: Chapter 3) are characteristic, and for this reason, religious instruction also has to build on an expanded concept of education, as it can be differentiated into *formal*, *non-formal,* and *informal education* (cf. Schweitzer 2014; Grümme 2015), thematizing the interplay between extra-school education scenarios and their interactions with school education. It is a consequence of this approach that Media Education should be established as a reference discipline for Religious Education (cf. Nord and Zipernovszky 2017a: Chapter 3). Moreover, by way of Media-Didactics research dimensions, Religious Education enhances its compatibility with current discourses in politics (cf. Länderkonferenz Medienbildung 2008; KMK 2012; KMK 2016) and Educational Science (cf. Jörissen and Marotzki 2009; Imort and Niesyto 2014). The Würzburg project foregrounds the aspects of learning *with* digital media and *about* digital media. In learning *about* digital media, cultural phenomena of virtual realities have already been opened-up and elaborated on theologically, presenting that and how mediality is a characteristic of Christian religiosity (cf. Nord 2008). The thematic complex of death, mourning, and burial was focused on from several perspectives: death and burial in computer games (cf. Palkowitsch-Kühl, 2016), digitalized/virtual funeral cultures (cf. Nord and Luthe 2014a), e.g. QR codes on headstones (cf. Nord 2016), and Facebook as a generator of memories (cf. Luthe 2016). Alongside these subjects, phenomena such as blogging (cf. Nord 2014) and conflicts in Internet communications (cf. Palkowitsch-Kühl 2017b; Nord 2017b) were investigated as well.[4] In the area of learning *with* digital media, there have been some first teaching concepts (cf. Palkowitsch 2014) and some exemplary applications of method

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4   In an international context the research topic of religion and media and/or digital religion is in different varieties in
     charge (cf. e.g. Lövheim/Campbell 2017, Cheong et al. 2012, Cheong/Ess 2012, Ess 2016 and Campbell 2012b).

settings (cf. Müller and Palkowitsch-Kühl 2016; Palkowitsch-Kühl 2017a). The extra-school fields of education illustrate advanced media integration in processes of religious education (cf. Müller 2016b), and international comparison models point out the opportunities digitally-interactive tools provide (cf. Hopkins and Burden 2015).

3   Goals of the RELab digital Project

The objectives of the project may be described as follows:

1. Goal A (didactic): Creation of a circular practice-theory process in which digitalized interactions in teaching and learning scenarios of the school subject of Protestant Religion are reflected didactically. An exemplary guideline question is: Will this accomplish an intensification of subject orientation in classwork? If so, can it be didactically re-formulated? If not, which factors of the teaching, respectively learning process are relevant here?

2. Goal B (methodological): Emulating the discipline of Empirical Teaching Research, established digital methods from adjacent school subjects are adopted and adapted for religious instruction. In addition, new digitally-interactive teaching materials accommodating both the current lifeworld of the juvenile students and the competence-oriented curricula will also be developed, tested in practice, and evaluated.

3. Goal C (professional-practical): A concept for further education and training will be initiated, passing on both the didactics and the methods and teaching materials to multiplicators and agents in the educational work of institutes of Religious Education within the framework of state and church institutions.

With regard to all these objectives, Practical Theology and Religious Education face the integral question of how religious communications and religiosities are transformed in mediatized worlds. It is one of our key theses that the perception of Christian religiosity and the reflection on it also change as digitalization moves onward. These processes of transformation come with questions concerning the individual sub-objectives, some exemplary ones being:

Will, due to digitally-networked media integration, integral elements of religious *Didactics* be transformed, so that religious teaching and learning processes must be revised? Which insights regarding the perception of (Christian) religiosity and religious communication can we formulate, how can they be described and understood? Does the role image of the teacher undergo a transformation process, and how may it be interpreted?

4   Didactic and Subject-Specific Components for the Development of Digitally-Interactive Teaching and Learning Scenarios

Didactical/methodological conceptualizations of teaching and learning sequences have to build on existing didactic models and make them useful for Religious Education. It is therefore necessary to render them compatible in terms of its *specific didactics*, respectively to advance these didactics with a view to this aspect. There are four pertinent models that provide the foundations for developing teaching and learning scenarios, as introduced below:

The so-called SAMR Model developed by Puentedura (2012) in the US provides first important differentiations: Substitution, Augmentation, Modification, and Redefinition. (Figure 2). The first two levels represent an enhancement or expansion of previous traditional methods and media by the use of more recent technologies, the latter two depict a transformation of methods and media leading to a re-definition of teaching and learning.
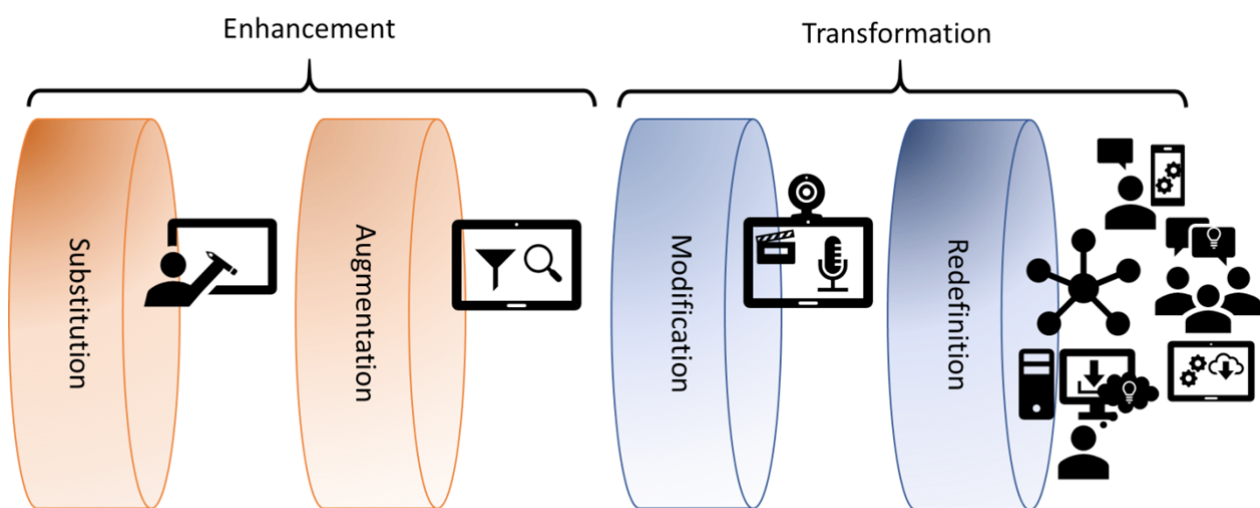
Figure 2: SAMR Model (Puentedura 2012), our diagram.

Substitution means the exclusive substitution of analog media by digital media, without any other additional functions. This approach may be exemplified by replacing traditional note-taking with pen and paper with tablet PCs created for this purpose. *Augmentation* goes one step further, as tasks, respectively the possibilities for activities are growing in tandem with the technologically expanded range of functions: The notes recorded on the tablet may be searched, modified, and distributed more easily than before.

Looking at the potential of tablet PCs more closely, we recognize further possibilities, which no longer have anything in common with the task of note-taking by hand. We may take photographs (e.g. of black/whiteboard diagrams) using the camera and embed them in the notebook, the

microphone makes it possible to record sound, so that we can, e.g., archive our own comments. This creates different demands on students and teachers: The task spectrum is not only expanded, but new task formats are made possible as well – the result is *Modification*.

With the aid of an Internet connection of the tablet PC, the notebook may be shared, to be edited and adapted by in-group co-operation using the appropriate cloud software. These are scenarios only made possible by the utilization of technology, favoring *Redefinition* of teaching and learning processes, so that completely new didactic scenarios may be designed.

The SAMR Model, on the one hand, motivates the reflection on the previous classroom uses of media, technology, and methods for the purposes of Religious Didactics; for the learning scenarios now to be planned, on the other hand, it helps define which competences in the area of Religious Education are built up and promoted in which digitally-supported learning scenarios. Bloom's *Taxonomy* (Bloom et al. 1956), respectively its further development by Anderson and Krathwohl (2001) provides bases, which, however, were developed inside cognitively-oriented learning processes. Particularly for the reason that web-based communications create high degrees of sensitive immersion, challenging the emotionality of humans considerably, these taxonomies should not be adopted without further reflection: *Remember, Understand, Apply, Analyze, Evaluate, Create* (cf. Anderson and Krathwohl 2001).

We may recognize parallels to current concepts in Media Didactics, such as the Media Pass in North Rhine-Westphalia, the EPA Standards for the subject of Protestant Religion, and the process-related competences of the Bavarian *LehrplanPlus*[5] school curriculum, all of which offer suitable connection points for Religious Didactics. For the didactic development of digitally-supported teaching and learning scenarios, then, both models are linked (cf. Mishra and Koehler 2006) (Figure 3).

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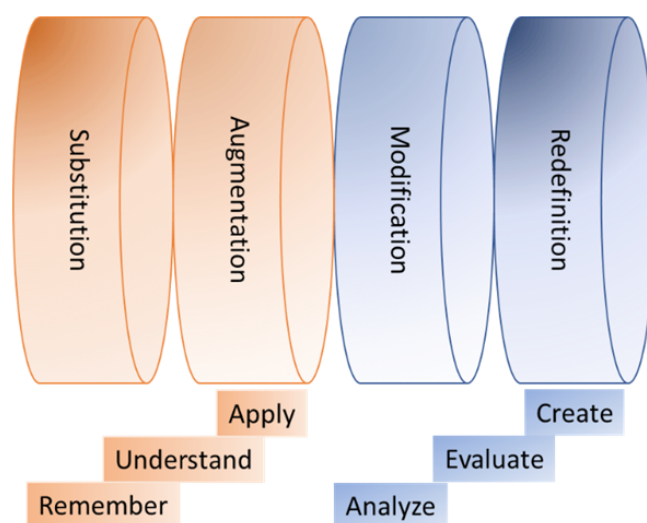
5　Bayeri   chung,
　　Lehrpl
　　http://   ), 2017).

Figure 3: Synthesis of SAMR Model and Bloom's Taxonomy, based on Mishra (2009), our diagram.

Finally, for focusing the requisite competence areas among teaching staff, the project will connect to the Technological Pedagogical Content Knowledge Model (TPCK, Figure 4). This model illustrates that, when utilizing new technologies in teaching and learning scenarios, different knowledge areas must be activated and used together: Domain-specific content knowledge (CK), pedagogical knowledge, respectively competences (PK), and knowledge of and competences in teaching and learning technologies (TK): "Technological Pedagogical Content Knowledge (TPACK) refers to knowledge about the complex relations among technology, pedagogy, and content that enable teachers to develop appropriate and context-specific teaching strategies" (Koehler et al. 2014: 102).
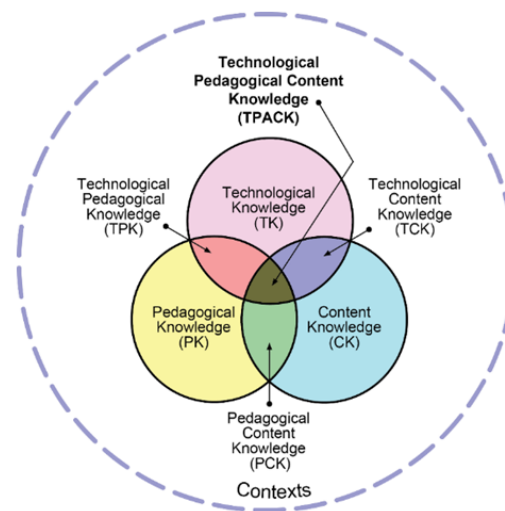

Figure 4: TPCK-Modell according to Koehler et al. 2009.

On the one hand, the model will be used as an analytical tool in the evaluation process for teaching materials; on the other, it will support the development of teaching materials together with teachers (cf. Denise et al. 2014). Eventually, it may be used to specify needs and demands for opportunities of continued education and training.

Aside from these older, well-established models for the integration of media into contexts of general and media education, a more recent model, the iPACFramework of Kearney et al. (2012), which especially focuses on mobile learning, will also be incorporated. Using the iPAC-Framework, the specific features and the affordance character of terminals, by which they characterize learning, may be recognized. The *Signatrue Pedagogies* (cf. Kearney et al. 2015; Burden and Kearney 2017) of mobile learning represent this, consisting of three guideline constructs: *Personalisation, Authenticity, and Collaboration* (cf. Kearney et al. 2012). Within the framework, these guideline constructs are divided into seven sub-constructs: *Agency* and *Customisation*, *Task*, *Tool*, *Setting*, and

Conversation, *Data Sharing*, and *Data Gathering*. (Figure 5). At the heart of the model are the concepts of 'Time' and 'Space', which point out that the model of mobile learning (m-learning) significantly differs from traditional learning models that assign learning to certain formal and time-bound structures, for instance, the school classroom with its 45-minute units. Incorporating virtual learning spaces that offer access opportunities outside of rigid time structures enables ubiquitous learning. In this respect, Schuck et al. (2016) speak of mobile learning in a 'Third Space', somewhere between the 'First Space' of formal learning settings and the 'Second Space' of non-formal settings such as museums and libraries. "The characteristics of transformation, hybridity, fluidity and boundary-crossing make the Third Space a useful metaphor to use in exploring contemporary learning in and beyond school, learning that is enacted in both formal, structured learning environments and unpredictable, emergent, learner-generated spaces. While learning across the latter spaces has existed for many years (for example, language learning in situ in early childhood, learning to drive a car, participation in citizen science projects), it has been divorced from formal learning. It is the ubiquity and portability of mobile technologies that now assist contemporary learning to be seamless, connected and accessible, thus demanding a re-examination of the possibilities afforded through m-learning" (Schuck et al. 2016: 3f.). This re-connects to the preliminary consideration in Chapter 1, which proceeds from an expanded concept of education, for which mobile technologies open up new possibilities.
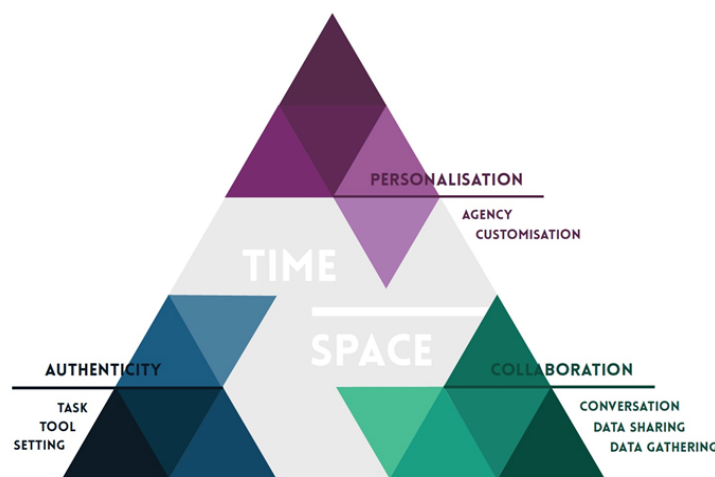

Figure 5: iPAC Framework according to Kearney et al. 2009, in: Burden and Kearney 2017.

Personalisation focuses on the possibility of self-directed learning, so that students (co-) determine their learning process with regard to location, space, time, and content. The competences to be

learned and trained are defined by the learners themselves, and, what is more, the entire learning arrangement is adapted to the learners' needs (Figure 6).
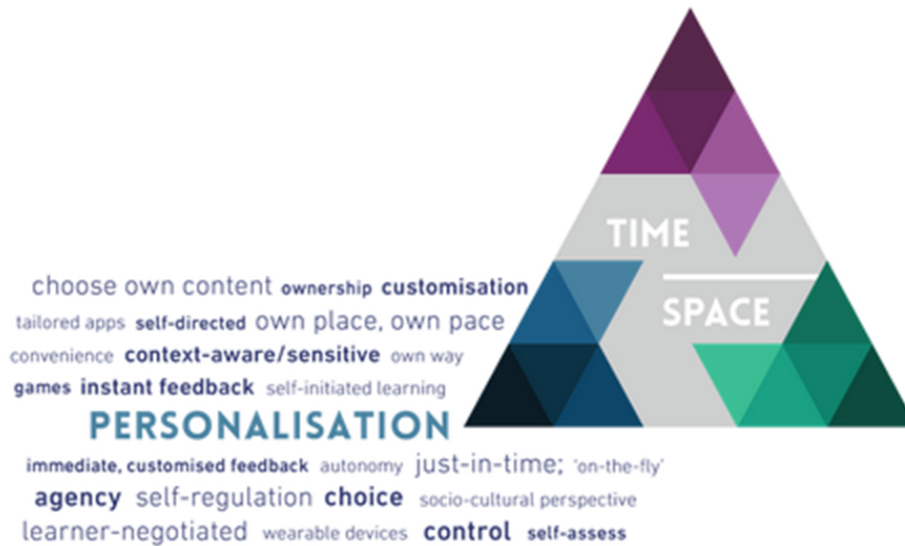
Figure 6: Personalisation (Burden and Kearney 2017).

Authenticity summarizes those aspects which sketch out meaningful learning. Primarily, it is about creating learning situations that appear authentic and develop meanings and interpretations that are life-relevant and personal (Figure 7). At its center are the questions as to the suitable task, the suitable method, and the suitable framing: How can relevant and realistic learning scenarios be created using mobile terminals?
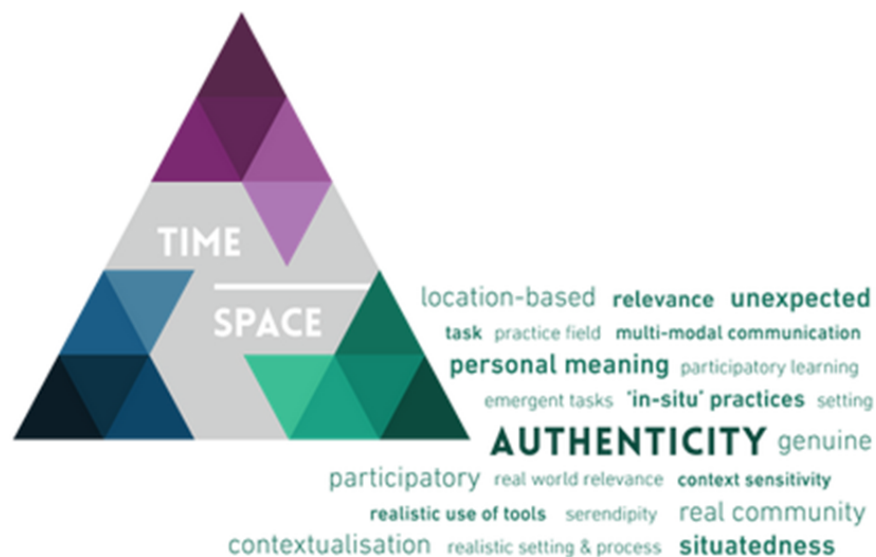
Figure 7: Authenticity (Burden and Kearney 2017).

Lastly, *Collaboration* represents the third guideline construct, asking to what extent students work together with the aid of mobile terminals (Figure 8).
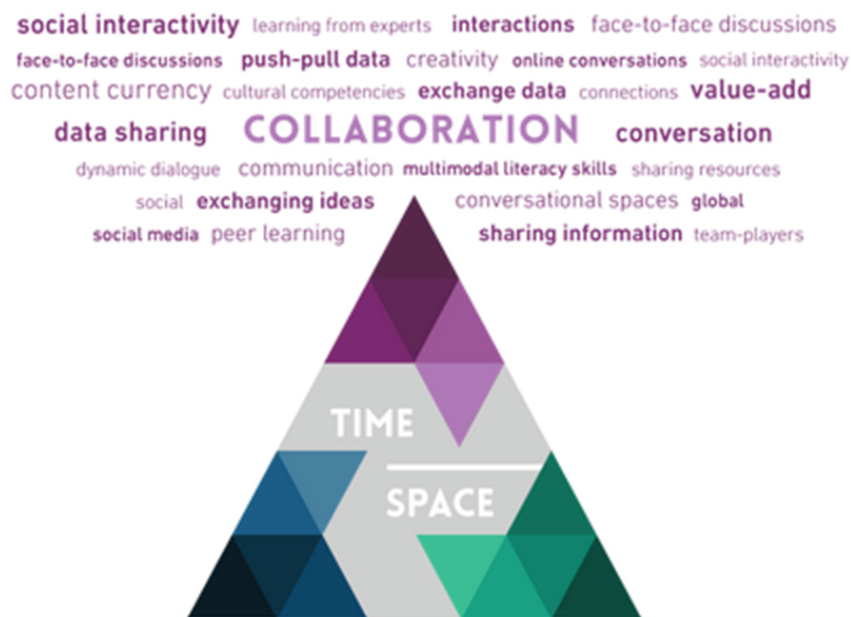
Figure 8: Collaboration (Burden and Kearney 2017).

This model is also helpful in both the analysis (see Figure 4) and the development of teaching and learning scenarios, by encouraging the questioning of the conceptualization of the respective scenario with the aid of the three guideline constructs. This does, of course, not mean that every sequence must cover each area. Instead, the model is intended to warrant that individual sequences are planned purposefully, focusing on one aspect.
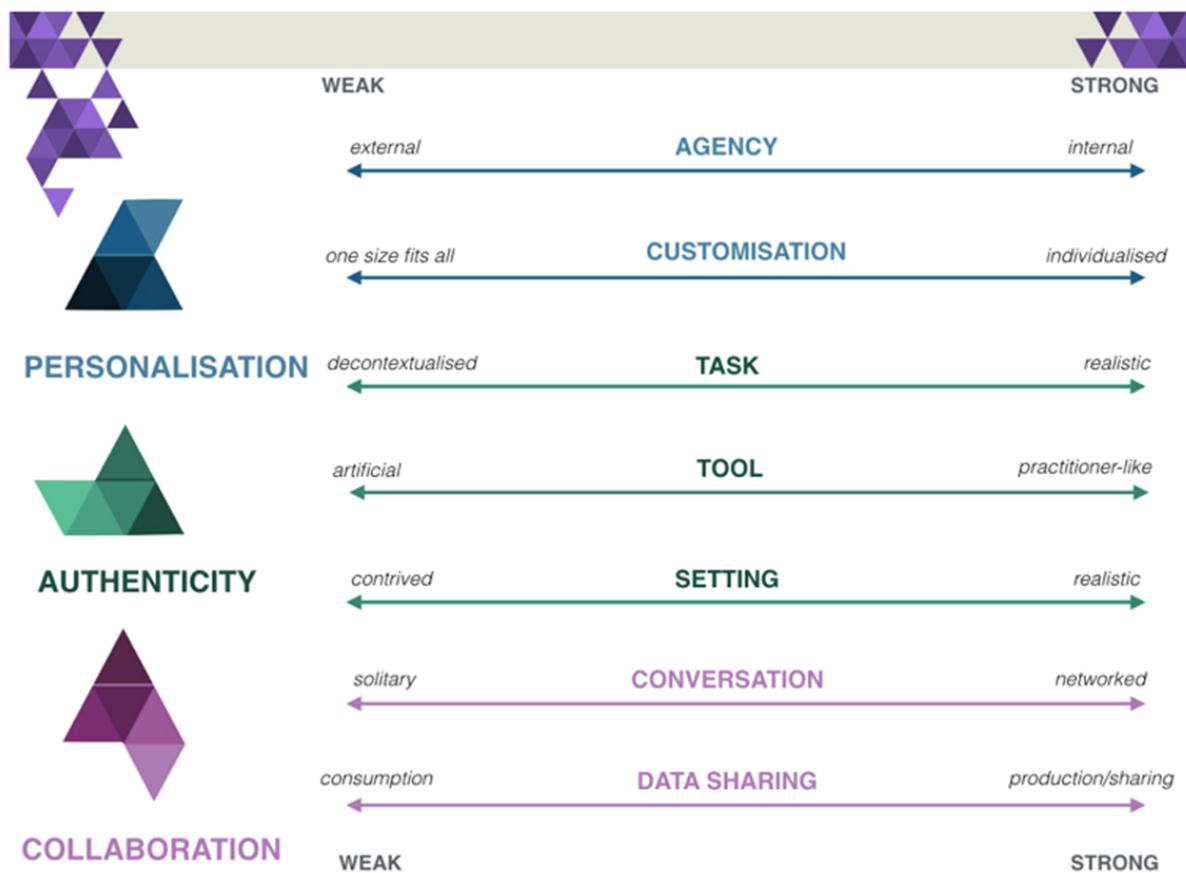
Figure 9: Evaluation of mobile learning activities using the iPAC Framework (Burden and Kearney 2017: 14).

In a *subject-specific* dimension, the teaching and learning scenarios to be developed here refer to LehrplanPlus, the new curriculum of the Bavarian Ministry of Culture, selecting existential themes in particular. The selection corresponds to conceptual framework programs that take an interdisciplinary interest in "21st century learning frameworks" (cf. Kereluik et al. 2013) (Figure 10). The complete definitions of these areas may be found in Kereluik et al. (2013); two of them, however, will be represented here The most frequent appearances are found in *Core Content Knowledge* (Kereluik et al. 2013: 130), in the knowledge domains of Mathematics, in problem-solving and the understanding of the natural world, as well as in the domain of English-teaching. Deserving of special interest is the area of *Humanistic Knowledge*, which, in its further sub-division, operates with concepts of *Cultural Competence* and *Ethical & Emotional Awareness*. "Ethical awareness included the knowledge and skills necessary for success in a culturally diverse society, such as the ability to imagine oneself in someone else's position and feel with that individual as well as the ability to engage in ethical decision making" (Kereluik et al. 2013: 131).

The authors of the framework program emphasize the formation of cultural competences, which expressly promotes personality development and the ability to collaborate, and the competence of appreciating personally meaningful ideas and feelings. Some of the abovementioned pedagogical and didactic principles and concepts which provide central orientation in a relevant type of *religious education in a mediatized world* include the dimension of *Ethical & Emotional Awareness* as well[6]; for this project, the latter is to have central importance. Since digital communications, as we pointed out earlier, can elicit enormous immersions and evoke strong emotions, this gives rise to an increased demand for religious learning processes during which ethical and emotional attentiveness and a responsible way of dealing with emotions are reflected and practiced.[7]
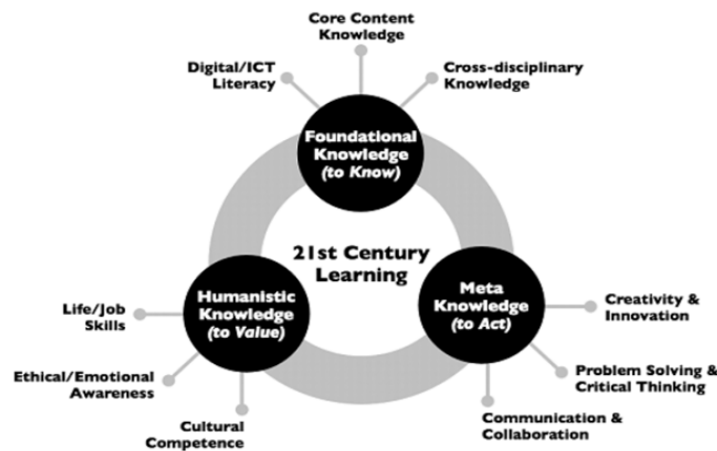
Figure 10: Synthesis from 15 21ˢᵗ Century Learning Frameworks (Kerleuik et al., 2013: 130).

The subject areas resulting from this have been named as follows: (P1) Love Relationships, and Sexuality, (P2) Death, Mourning, and Burial, (P3) Dare Democracy! (German: Demokratie wagen!), and (P4) Faith Becomes Visible! (Glaube wird sichtbar!) (Church History/Church Space Education, among others).

These subject areas also cover focal themes of two surveys among juveniles, Sinus-Jugendstudie 2016 and Shell-Jugendstudie 2015 (cf. Calmbach et al. 2016; Deutsche Shell Holding GmbH 2015). It is not a particularly new fact that "no matter whether Muslim, Christian, or without denominational affiliation: Young people are interested in fundamental issues of life – albeit in specifically different subjects. While Christian and non-religious youths are primarily moved by the questions where we come from and what comes after death, for young Muslims it is often relevant to distinguish what is just or morally right. In part, they also seek answers to this in their religion" (Calmbach et al. 2016: 342). Teaching and learning scenarios are developed by denominationally-

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6   In this context, the entire area of interreligious and intercultural learning must be explicitly mentioned once again.
7   Cf. phenomena such as Hate Speech and Cyberbullying.

cooperative and also interreligious project teams with their respective section heads. The selected themes are addressed across school types and denominations in Jewish-Christian and Muslim-Christian collaboration, possibly even in trialogic teams. In addition, student projects on *Media and Methods* will be implemented in seminar formats. In the coming semesters, one focus will be on the production of interactive e-books.[8]

Two of these planned teaching and learning sequences and their digital/didactic methods will be further elaborated below. At their center is the thematic area of "Faith Becomes Visible!" In the first example, virtual realities (VR) will be expanded by imagings/images of physical reality, enabling virtual expeditions to physically existing locations. The second example shows how physical reality is expanded and augmented by virtual spaces (AR), creating new learning sites not bound to any location.[9]

4.1   Example: "Faith Becomes Visible! – Virtual Expeditions to Sacred Spaces"

Faith takes its shape in multifarious forms of expression. As places of congregation and community in which humans encounter one another, church spaces and other sacred spaces are a significant example of this. Inside them, signs, symbols, and objects are made use of for religious communications in architectural space. Thus, both one's own experiences with the ways that humans live their faith(s), and those of others, are made accessible.

4.1.1 Didactic Implications

In the area of Religious Education, excursions to church spaces and sacred spaces are already well-established. Difficulties arise, however, when church spaces from selected periods and sacred spaces of certain religious communities prove inaccessible, due to (non-)existent infrastructures – or when they no longer exist. Pictures and videos easily put the observer in a position to walk these spaces in a way that is bound sensually and bodily. Ceiling paintings may be scrutinized in more detail than previously possible when looking at a 'real' space with the unaided eye. In addition, there is the possibility to walk around certain parts of the space several times, and to do it from different directions. Didactically, a virtual expedition also lends itself to the preparation and follow-up of a real perambulation on-site. This vastly increases degrees of immersion. The impressions and experiences from real and virtual visits to sacred spaces amalgamate into a specific impression quality; they do not only occupy fixed places in memory, they also manifest body-corporal traces.

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8   International co-operation with the University of Hull (UK), Paul Hopkins.
9   Similar methods and offers already exist alongside the two options presented here, although they may differ from the approaches we describe. "Kirche entdecken" (first publ. in book form: Birgden/Rosenstock/Tesmer 2008, and digitally-interactive online at: kirche-entdecken.de), e.g. leads children into a church space rendered in comic-book style.

It should not be underestimated either that people with limited mobility now also have opportunities to immerse themselves in these worlds; it is therefore our thesis that, on another level, they become accessible in a way that is far more barrier-free than before. Faraway and nearby places of worship may now be experienced together from any location in the world.[10] Moreover, expeditions to religious meeting places often require considerable organizational effort and financial expense. For people with low or no incomes or little state support, this also proves a considerable obstacle. Embarking on virtual expeditions can increase participation opportunities at cultural and – in line with our focal direction – particularly at religious sites of encounter and education.

The rise of letterpress printing already ushered in a change in the way humans perceived the world (and religions): Theoretical/abstract faith knowledge gained in importance over the concrete practice of faith. Prior to this, faith had been imparted orally, unfolding virtual faith dimensions in the imaginations of the people (cf. Nord 2009). The letterpress gave rise to a secondary orality (cf. Ong 1982), which made the eye the central sensory organ. Digitally-networked media, incorporating and transforming the achievements of past developments, offer similar accesses to faith, while also offering the added possibility to interlink them with one another. This builds up digital realities inside which expressions of faith are made visible by virtual overlays and broken down in terms of Church History and Symbol Didactics, without a haptic-sensual approach becoming impossible or redundant.

4.1.2 Sub-Project Goals and Competences

The goal of this sub-project is to virtualize selected church spaces and sacred spaces of other religious communities as authentically as possible, and to augment them with relevant additional information. Beyond that, we will also develop didactic supporting materials, which will direct the focus towards the "Faith Becomes Visible!" theme. Next to aspects that are purely knowledge-imparted, emotional aspects also play a role: Spaces are to be designed as something to be experienced. It is an important aim of the project that the educational experiences children and adolescents have undergone in these spaces, and the assimilation of these experiences in their memories, are reflected in terms of Religious Education and Didactics. Relevant questions could be to what extent the students were able to open themselves up to the space, respectively, to what extent the space was able to open itself up to them. Was it able to generate a spatial effect? Which aspects of the space became important to the students? To what extent were they able to recognize signs of the faiths of others or to determine signs for themselves?

The materials are to be developed barrier-free, so that they can also be used by people with (sensory) impairments. This can be accomplished, e.g. by audio commentaries or subtitles. Audio

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10   It should not remain unmentioned that digital media also build up barriers of their own, which have to be overcome as well.

description of individual objects is also possible. 'Barrier-free' also means target-group-specific language, which involves didactically reducing constructions of meaning to such a degree that they can easily be grasped.

By this sequence, the perceptive and interpretative competence of the students is to be built-up and enhanced. As they experience the immersive spatial impression, not only cognitive, but also emotional accesses to the study object are opened up to them.

4.1.3 Sub-Project Plan

Using 360-degree photography, we record images and videos of church spaces and sacred spaces of other religious communities. These recordings are then given a virtual overlay, which offers additional information on the location, the objects, and their meanings. This overlay will not only consist of textual messages but also of audio recordings.

Technological implementation will use the *Google Expeditions* application launched in 2016. *Google Expeditions* makes it possible to design virtual excursions and to conduct them accompanied by teaching staff. Teachers and students wear VR glasses which provide access to these newly-created learning spaces via the *Expeditions* application on their smartphones. During the expedition, teachers can direct the students' focus towards certain areas and thematize this. Students may also explore the space in their own individual ways.

In addition to the virtual environment, the project will also prepare didactic supporting materials, primarily in the form of interactive digital textbooks ('id-books') (Figure 11), which facilitates a deeper understanding of expressions of faith within these spaces. These id-books consist of two parts: firstly, a student copy that includes factual texts, multi-media contents, tasks, pages for personal notes, and a methodological glossary, and secondly, a teacher's copy compiling competences, information on educational curricula, in-depth background information, the relevant didactic commentaries, and advice on technical utilization. The two books are linked, so that the completed tasks in the student copy can be collected in the teacher's copy, to be viewed and evaluated by the teachers. This also serves to give feedback to students, providing them orientation regarding the competences to be acquired or enhanced.
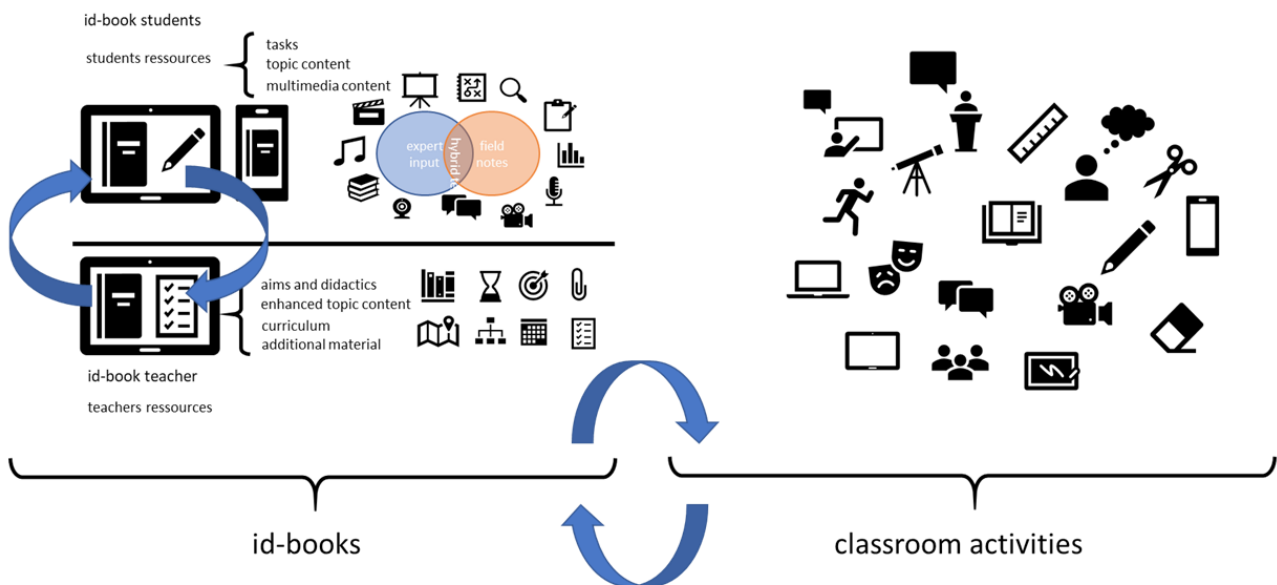
Figure 11: 'id-book' as a basis for lesson units, our diagram.

4.2　A Second Example: "Faith Becomes Visible! – Augmented Realities, (not just) in Church Space, but Everywhere"

Referring to Bucher (2000), Beyer (2006) describes how children and adolescents appropriate their environment through activities (cf. Beyer 2006: 210f.). This appropriation leads to a successive expansion of their environment. Beyer expressly speaks of 'environment', and not of 'lifeworld', as the latter signifies spheres of life that are perceived to be sense-making and meaningful for humans. These are, of course, individually negotiable for every person and therefore subjective to the highest degree. In the sense of Constructivism, the lifeworld constitutes a living space constructed by the subject. Beyer then addresses the question which role church space plays for the lifeworlds of juveniles and arrives at a sober conclusion: For adolescents, there are only few or no personal experiences with church spaces, and therefore they only assume little relevance to the lifeworlds of young people (cf. Beyer 2007: 211). On the one hand, this can be assessed negatively, as they have no personal memories and/or emotions connected to the space, nothing which could be built on. In a positive view, unknown things give rise to curiosity, and this would create an incentive to approach the space and investigate (cf. Beyer 2007: 211f.). According to the fundamental tenets of Constructivism, the individual appropriation of the church space and the locations that are becoming subjectively meaningful is a consequence of this. This raises the question to what extent a digital/didactic concept can initiate and/or support these negotiation processes. Apart from

investigating these spaces in virtual realities, they also lend themselves to approaches in concrete space and in a completely different space.[11]

4.2.3 Didactic Implications

The methods of Church Space Education are often based on those of Museum Education, but also on those of holistic and experience-related Religion classes. The investigation of the individual objects in church spaces with the aid of control sheets in station work has established itself as one of the better-known methods. A digital/interactive updating of station learning therefore appears logical. Looking for a suitable tool, the decision was made in favor of the *Actionbound*[12] application, which will be presented in more detail below.

4.2.1.1 A Brief Introduction to the *Actionbound* Application

Actionbound provides a digital platform which meets the requirements of digitalized station work. What makes this application special is the integrated principle of 'Gamification'. The game mechanics reward and compare progress, e.g. by awarding points for individual successes and creating a ranking. Progress can be achieved alone or in groups. The game's principle is simple and familiar to most players from their childhood days, as it emulates a scavenger hunt, and anyone who is already prowling around as a digital treasure hunter will recognize similarities to the popular *Geocaching*.

Actionbound enables the creation of so-called *Bounds*, which may be designed either as *digital scavenger hunts* or as *interactive guides*. Basically, various stations are designed, which can be visited and worked through in either linear or random fashion. Players are guided from station to station either by GPS coordinates or via QR codes. Linking both variants is also an option.

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11 *Space* is also ascribed a decisive role in Sociology. Adolescents no longer take possession of their social rooms by expanding their possibilities for action, as it was the case in earlier times and as it is explained in classic theory. According to Ketter (2011; 2014), in a digitally-networked world we can no longer assume a successive expansion of the social space proceeding from the parental home. Instead, juveniles construct experiential spaces for themselves, which are not bound in any location-related sense any more: "Today, due to developments in media technology (Computers, the Internet, cellphones), adolescents experience space as fragmentary, shapeable, moved and moving, selectively linked, like a 'flowing network' (Löw 2001: 266). According to more recent spatial theories, juveniles no longer appropriate social space in a successive expansion of their space of action in concentric circles, as, e.g., in the socio-ecological zone model (Baake 1987). Space is experienced rather in the sense of an update of the insular model according to Helga Zeiher (1983), which also accepts the accrual of several spaces in one location" (Ketter 2011: 20). Individual experiential spaces do not necessarily have to have any relation to other experiential spaces, i.e. to get from A to C, one no longer has to pass through B. Instead, X and Y may also represent spaces. Ketter introduces the term *vireal social space*, addressing the dissolution of the virtual world and the lifeworld and the concomitant separation of virtual and real action (vgl. cf 2014: 301).

12 www.actionbound.de

Individual stations may be composed from a variety of elements, using the *Bound-Creator*.[13] For instance, they could include: *Information Element, Quiz, Tasks, Find Location, Scan Code, Survey,* and in a *Group Bound* with several participants per mobile terminal, the *Tournament* element. The individual elements will be analyzed didactically in the next section (4.2.1.2).

When finished, *Bounds* may be made public, so that anyone may play openly or as a *Secret Bound* with password protection. One can also decide to publish the scores of the individual players and/or groups.

Actionbound is free of charge for private persons; for schools and other institutions of learning, there are special EDU tariffs which may only be used non-commercially.[14]The application may be installed free of charge on *Android* and *iOS* devices. Before utilization, *Bounds*, including media contents, may be locally downloaded to the mobile terminal, personal contents (video and sound recordings, images and texts) may only be uploaded as an option after the *Bound* is completed, a data link during completion is therefore not necessarily required.

The use of location data requires a GPS link and an active Internet connection for map display.

4.2.1.2 The Didactic Potential of *Actionbound*

In educational contexts, the application offers two possible options of use: In one, the teacher creates a *Bound* and has the students complete it, in the other, he/she has the students create a *Bound*, and it will then be played together. The decision between the two options depends on the competence areas teachers wish to be initiated (e.g. creative competence of students), but also on the organizational framework conditions of the learning situation. Naturally, it is hardly possible to create one's own *Bound* with a learning group in the average 90-minute period. During an entire project week, however, this might prove a worthwhile endeavor.

The opportunities offered by the individual *Bound* elements, especially with regard to Church Space Education, are presented in Table 1. Here, it is important to mention that multi-media contents (video, images, audio) and links to other Internet sites may be added to almost all elements. Students therefore do not always have to read the tasks but can comprehend them with the support of other media. This may positively affect their motivation, if tasks are set in a way that is attractive and barrier-free.

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13 The *Bound*-Creator is a Web platform in the internal section of www.actionbound.de with the aid of which one may compose one's own interactive tour by *Drag & Drop*. The *Bound*-Creator can only be accessed via Web browser, and for reasons of clarity, it is advisable to use a device with a somewhat larger display when working with the platform. The Bound will then be performed on a smartphone or tablet under the *Actionbound* application. Afterwards, the administrators of the *Bound* have the opportunity to call up, compare, and save the individual scores of the stations in the internal section.

14   For more detailed information, see https://de.actionbound.com/preise.

Table 1: The Elements of the Bound-Creator, our diagram.

Element	Description	Possible Modifications	Didactic Comment	Example Relating to Church Space
Information Element	The Information Element may consist of text or multi- media contents.		Enables knowledge-building (e.g. background information), but also framing of the rally.	- relate to individual objects in church - create biographical access by frame story, e.g. of the builder
Quiz	The Quiz Element allows the design of question stations. These elements are closed questions. The correct answer has been pre-determined by the creator. The terminal will register answers directly after input.	*Textual Response*	Enables investigative questions which offer one correct option for an answer.	"How many naves does the church have?"
		Multiple-Choice Questions	Activates memories of possible solutions. May be more motivating than an open question, due to recognition.	„Which inscription is on the Cross? "INRI – INRE – NIRI – ENRE"
		Estimation Question	Creates links to other knowledge areas in order to answer the question.	"What year was the church built?"
		Sorting Tasks	Visualizes processes and sequences.	"Match the words to the chronological sequence of church service."

Task	Creator may design a task, solution to be handed in via image, audio/video recording, and as a text, saved in the cloud memory of the *Bound-Creator*		Creative solutions may be developed by students. Their subjective assessments and aesthetics are given room here. These open answers may then be discussed with the learning group.	"Take a photo of your favorite place!" "What might a 16th-century person have felt like during worship in this church? Take a photo!"
Find Location	Students are invited to change (learning)site, either by directional arrow or a map.	Directional arrow	Sensitizes perception of the environment.	A QR Code may be affixed to a significant object.
		Waypoint on the map	Geographical knowledge is expanded and deepened.	Points may be content-related to the subject.
Scan Code	Students may scan a QR which calls up an element (e.g. Task).			
Survey	Conducts a survey, with possible answers pre-determined by the creator.		Student or learning group is asked for opinion. Opinions may then be discussed with learning group.	"Would you, if you had children, have them baptized?"
Tournament	Facilitates a contest between two randomly-drawn students from two learning groups. Both must solve a problem (time limit), the faster one wins.		Motivates faster problem-solving in tasks that appear somewhat lengthy. Activates students. .	"Count all the church windows!"

The manifold formats under the *Actionbound* application admit countless scenarios, to be used along the entire scale of a teaching/learning trail. Teachers should be aware that the completion of a *Bound* only constitutes *one* part of the teaching and learning process. The subsequent mirroring and reflection of the scores into the learning group and with the learning group represent the most important cornerstones of the *Bound* in working with learning groups.

As the elements can also be designed to be deployable detached from the actual (church)space[15], it is possible to use the application to make every space didactically utilizable. In this way, the classroom or the sports field also become church spaces that want to be explored – "Religion to go!", as it were.

Of course, the application is not limited to the field of Church Space Education, it is conceivable with every (religious) content. Müller (2016) describes the utilization of *Actionbound* for the thematic area of the Reformation and the life of Martin Luther. Within the framework of the project, we ourselves will create a *Bound* which thematizes Protestant pastor Paul Schneider and his radical testimony of faith against the tyranny of National Socialism, together with a youth group of the Rhenish Regional Church, in the fall of 2017.

Before venturing to create one's own *Bound*, a look at the search function[16]of public *Bounds* might prove helpful. For many thematic areas, for Religion as well, feasible *Bounds* may be found here, e.g. "The Five Pillars of Islam", "Tracking Religion Wiener Neustadt", and "A Reverence for Life". Public *Bounds* also include those of institutions, for instance, Bibelhaus Frankfurt.

4.2.2 Goals and Competences - the Virtual Dimension of Faith

In this sub-project, firstly, sacred spaces are charged with additional information, and secondly, supposedly common locations, without religious symbolism, are transformed into religious learning sites by virtually incorporating objects and inducing experiences with them. The mobile terminal affords students access to information and tasks that relate to the learning object and have been pre-determined by the teacher. Other than in 4.1, no artificial church space atmosphere is built up; instead, the negotiation with the church space is of central interest, since in Variant 1 – encounters in the real church space – it already exerts an effect, and in Variant 2 – encounters in supposedly religious locations – the creation of an atmosphere of this kind would not be expedient. What is important is the practical and cognitive inspection of both the objects and of oneself and one's own subjective feelings inspired by them. The space created in this way exists within oneself, as a virtual space in the mind. Primarily, students are to be schooled and trained in their competences of

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15   Here, a Bound may be created without location markings, via GPS. The QR Codes may also be affixed somewhere
     else, inviting users to play a Bound in different spaces and to reflect the different effects.
16   https://de.actionbound.com/bounds
     https://de.actionbound.com/bound/bibelhaus-frankfurt

perception and interpretation, but in their communication competence as well, for instance, by undergoing their own experiences and relating religious convictions. This is made possible by, among other factors, the open and creative forms of participation of a *Bound*, in the Task format. Here, students may design their own liturgical elements and learn how to handle existing forms in a creative manner. The option of changing perspectives opens their horizons, encouraging them to assume other views and to discuss them.

In the transverse dimensions of Practical Theology and Religious Education, questions are asked: To what extent does the perception process of religious communication on the part of the students change? Can religious accesses be facilitated? How does the role of the teacher in all of this change?[17]

4.2.3 Sub-Project Plan

Selected churches in Würzburg are explored, and information related to the "Faith Becomes Visible!" theme is collected. Above all, the various objects and their ritual practice play a major role. Such an exploration, with a group of school and university students, is in the planning stage. Already existing materials on church space tours will be integrated into the design of individual stations. Images, videos, and sound recordings for the framework story will be recorded and edited. The groups will decide which variant of the investigation they choose.

As in 4.1.3, an 'id-book' will be produced, comprising the data consolidation of the stations and motivating students to continue their work and acquire further in-depth knowledge.

5   Summary

Both sub-projects provide insights as to which possibility spaces are opened up by media integration into religious educational processes. It becomes clear that the utilization of digitally-networked technologies breaks through the barriers of time and space that constrain conventional teaching and learning processes. Sequences may also be used in the area of non-formal education

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17 Describing the use of *Actionbound* in libraries, Rittel (2016) sees one of the key benefits in the way "that students can be given individual answers to every single question and, if need be, hints for improvement and revised answers" (Rittel 2016: 95). "Given an average class size of 25 students in the 'classic' form of teaching, such detailed feedback and saving of results is not even remotely possible" (Rittel 2016: 95). This individual attendance also occurs during completion: "Preparation is time-consuming, but then there is much room for individual attention during implementation" (Rittel 2016: 93). Accordingly, teachers would be approachable with individual queries and would have the time for them, while the other students go through the rally at their own learning pace. In the area of Religious Education, therefore, the role of the teacher in digitalized teaching and learning processes must be re-thought (cf. Nord 2017a: 299; McIsaac 1995).

and facilitate education processes in an informal framework, e.g. when students go on expeditions of their own or perform *Bounds* as an extra-school, free-time activity. In this context, the boundaries between virtual and physical realities dissolve, and learning takes place in Mixed Realities. To what extent these shifts of space, time, and boundaries will affect the theory and practice of Religious Education, reflection of these teaching and learning processes will tell. For our team, however, it is a certainty that, due to the integration of digitally-interactive technologies into education processes, *Didactics* must change as well, i.e. it is no longer about learning with new media, but rather about *a new mode of learning with media* (cf. Aufenanger 2002). The concomitant effects of this new way of learning on the areas of the *teaching profession* and the communication and perception of religion(s) entail the potential to influence religious educational processes extensively and for a long time. Our project will attempt to find answers to the question in which direction.

All in all, our project is breaking new ground with its digitally-networked media integration into Religion classwork and its reflection. Some schools are already using new technologies, such as electronic whiteboards, document imaging cameras, and tablets, yet subject-specific didactic focusing and concepts for individual subjects can hardly be discerned, especially in the minor ones. We are therefore curious to what extent the potential of digitally-networked media will affect the teaching and learning processes of students and educators, in terms of the utilization of multifarious materials, the facilitation of intermedia accesses, the promotion of collaboration, the interactivity of learning, the flexible arrangement of learning times and sites, the opening-up of new learning spaces, and the visualization of learning (cf. Heinen and Kerres 2015: 5-9). "Digital media enable manifold openings of classroom activity, which would not be possible otherwise" (Heinen and Kerres 2015: 21). It is up to the Didactics of Religion to catch up with these opening opportunities and to reflect them in a circular process between academic and didactic thematic areas within concepts of Religious Education.

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