Discovering and interpreting audio media generation units: A typological-praxeological approach to the mediatization of everyday music listening

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Summary:
To deal with methodological challenges, which confront current mediatization research due to the ongoing digitalization of media, we suggest a mixed methods approach that is an adopted form of media repertoire analysis based on the generation unit concept of Karl Mannheim. Essentially, we propose that discovery and life cycle analysis of culturally meaningful media generation units may be achieved by 'quantitative' media repertoire studies on the societal level. However, interpretation of underlying orientation patterns, which explain empirically observed emergence, decline and metamorphoses of media generation units should be realized on micro level by reconstructive 'qualitative' methodologies that are able to differentiate between generational identity and generational habitus in the spirit of praxeological sociology of knowledge. Our critical-realist approach is demonstrated by a latent class analysis of Germans' audio media repertoires in 2012 and extracts of the documentary analysis of verbal material from narrative interviews with selected media generation unit members.

Keywords: mixed methods, audio media, generation, mediatization, music listening documentary method, latent class analysis, biographical analysis.

1. Introduction: Research motives and meta-theoretical background

1.1. Present methodological challenges for Mediatization research
Mediatization research investigates long term socio-cultural changes related to major technological changes in media environments of different social life-worlds (Hepp & Krotz,

2014). Nowadays, this type of research has to cope with growing challenges regarding 'media of the 3rd degree' (Jensen, 2010a) that have developed as part of *digitalization*: Media devices are increasingly mobile, ubiquitous and multifunctional and media content is increasingly interactive and interoperable across platforms. Also, media devices may be combined sequentially or concurrently and exhibit different functionalities at different locations due to locally distributed wireless infrastructures. Altogether, this is leading to more and more *trans-media use* taking place (Hasebrink & Domeyer, 2012), referring to the decoupling of media functionalities across different material technologies and social contexts: most types of media content may nowadays be recorded, received, transformed, controlled, displayed or emitted by a large variety of gadgets, devices, channels and infrastructures at very different places and times. As a result, people develop complex intertwined and situated practices with very heterogeneous media technologies. Some of these practices are short-term, some are rather long-term. Some are theme-specific, some are more generalized across content. Altogether, this poses the pressing challenge of how to capture that complexity on the empirical realm in order to understand the long-term mediatization processes taking place.

We were inspired to find new theoretical and methodological answers to these challenges in the course of conducting a research project that adheres to the socio-constructivist view on mediatization (Hepp, 2013). It tries to examine and understand the ongoing mediatization of everyday music listening in Germany (Lepa, Hoklas, Guljamow, & Weinzierl, 2013): For more than one hundred years, our everyday life has been shaped by ever-changing technologies for recording, transmission and playback of musical content. Due to the growing digitalization and interconnectedness of our media environment, one may presently observe an additional substantial change concerning the possibilities of integrating mediated musical practices into everyday lives – which could potentially lead to major changes regarding this important aspect of human culture in different life-worlds, too. Our research project[1] is trying to approach these changes from a macro perspective, aiming at a better understanding of the ongoing process of mediatization of everyday music listening. Beginning with gramophone and radio, alongside analog storage media age with vinyl and cassettes, finally leading from compact discs to nowadays mobile digital streaming music gadgets, the changing use of audio media technologies in everyday life is in our view an example 'par excellence' of the problems that we have described above as it has already been affected by the phenomenon of trans-media use quite early in history. While taking our own study as an illustration for the arguments below, we think that the meta-theoretical ideas and the empirical approach presented in this paper may also be adapted to other areas of everyday media consumption, like, for example, the complex forms of access to movies, TV-series or social network sites (SNS) that are nowadays prevalent.

In order to methodologically confront the complexities with digitalization mentioned above, Hasebrink & Popp (2006) have proposed the *media repertoire approach* to examine society-wide trans-media use: While recent studies partly also rely on interpretive analyses of card sorting procedures (Hölig, Domeyer, & Hasebrink, 2011; Hasebrink & Domeyer,

2012), their proposal of 2006 mainly employs computer-based parametric cluster analysis of large sets of media usage data on a common level of scope and grain (e. g., technology, genre, program) and referring to a certain communicative issue realized by media (e.g., information seeking) that researchers may choose based on the research question at hand.

After typologizing quantitative data and first interpretations of cluster profiles, regressions on sociodemographic variables are conducted. To allow for the interpretation of profiles as expressions of meaningful cultural practices and in order to understand the sociodemographic dependencies discovered, complementary case-based interviews with cluster members are proposed. While some promising studies have already been conducted on basis of this idea (Hasebrink & Popp, 2006; Hasebrink & Domeyer, 2012; Hasebrink, 2012), it is until now not embedded in any form of comprehensive meta-theory (Hasebrink & Domeyer, 2012, p. 762), which is why we see the media repertoire approach as an open 'methodological workbench'. Actually, the authors themselves state 'the repertoire-oriented approach has still to be elaborated' (Hasebrink & Domeyer, 2012, p. 777). In the following, we make an according proposal by drawing on ecological perceptual theory (Gibson, 1986/1979) in combination with the praxeological sociology of knowledge (Mannheim, 1924) and the theory of generational succession as carrier of cultural change (Mannheim, 1964/1928).

1.2. Media generation as a generic cultural process driving mediatization

In the following, we want to motivate the meta-theoretical idea that empirically observed media repertoires should be regarded as *causal outcomes* of an assumed generic *media generation process.* This process is thought to *potentially* create new types of *media generations* whenever there is a substantial change in *media technologies' affordance spaces* related to specific social life-worlds. The type of potentiality addressed is similar to the dialectical-materialist idea of 'determination in the first place' (Hall, 1986), while the notion of *affordances* employed stems from ecological psychology tradition linked with the work of James J. Gibson (1986/1979). It shall refer for our purposes to an abstract ideal-typic space of possibilities to perceive and act on the environment that is provided by any specific media technology, program or service, regardless of whether each and every part of this space is actually perceived or acted on by each and every human actor being in contact with it. Hence, the term describes a *real material potential* in each media technology 'waiting' to be perceived, interpreted and actualized before it can become part of empirically observable praxis (Jensen, 2010b, p. 74ff.). Every media technology or media service application provides different forms of such communicative and social affordances, but all may potentially alter human perception and action space in a specific way (Hutchby, 2001).

Employing this basic notion that is in line with the critical realist approach in media audience research (Schrøder, Drotner, Kline, & Murray 2003), we may consider the complex media environments that humans inhabit at a certain time and place as ensembles of combined affordances that may be regarded as slowly changing *possibility spaces for*

perception and action provided by the historically-developed economic-material life circumstances. These spaces are obviously in change alongside history, but most times only slightly and partly which according to Mannheim (1964/1928) should result in the development of common *generation locations*: Members of neighbouring cohorts will – ideally – experience the same or very similar media technological possibility spaces and are therefore prone to share a *common historical fate* in terms of their acquired general impressions of 'what media may afford' them. But such an *actualization of affordances in terms of their perception and interpretation* of course only takes place, if actors indeed have experienced media's affordances, be it through practical contact or through observation of others or even through media discourse. Following Mannheim (1964/1928) further, such a *media-generation-as-actuality* is in the first place only a form of *discursive bond* that is not to be thought of as being dependent on actually shared 'existential' social practices and deep engagement with the according media. It is foremost a kind of fuzzily shared common oral history with material environments that nevertheless serves as a basis of generation-related discursive practices which are fundamental for the creation of common generational identity (Corsten, 1999) in terms of a 'generational semantics' (Aroldi, 2011).

1.3. Emergence and lifecycle of media generation units

In contrast to an approach that regards media generations predominantly as discursive formations, we plan to follow Mannheim's praxeological approach to the generation problem even one step further: Following a similar proposal by Schäffer (2009), we assume that cultural meaningful media generation units will only emerge if, and only if certain media affordance spaces are practically enacted in everyday life during social actors' *formative years*. In line with Mannheim (1964/1928), the formative years are regarded as the typical life period of 'fresh contacts' with the socio-material environment and typically last from childhood to late youth. They are assumed to strongly pre-structure later experiences with the same and similar types of mediated affordance-spaces in terms of a *habitus* (Bolin & Skogerbo, 2013). The mechanism implied here is comparable to the ontogenetic acquisition phases of mother language, models of social and intimate bonding, or even musical taste. All these processes *tend* to start in childhood and are usually 'finalized' by the end of youth. Afterwards the 'grammars' (Gumpert & Cathcart, 1985) learned and internalized exhibit a certain inertia and robustness to major changes in life (of course: without totally precluding such).

By practically integrating single parts of surrounding media environments into their media repertoires during this formative period human actors are assumed to acquire membership of a media generation unit: they actively take part in a common collective 'media fate' in terms of practically sharing a common *conjunctive experiential space* (Nohl, 2011, 2014). Since individual biographies may actually differ, the phase of the imprinting fresh contact may be precipitated, delayed or even never actualized for some actors: According to Mannheim's conception, also the *social location* has to be taken into account: On the one hand, there is often social inequality in practical access to technologies due to

economic reasons (Cotten, Anderson, & Tufekci, 2009). But even if there is a strong overlap between repertoires and also equality in access to media in principle, actors from different social backgrounds may still tend to become differently 'familiar' to media technologies (Schäffer, 2009), due to family traditions, education, peer-group, partnership and other types of social influences. This may result in several 'opposing' media generation units that nevertheless share the same media-generation-as-actuality. We term the specific intersection of different social and technological milieux that induce media generation units metaphorically the 'generative milieux' since, in modification of a famous saying by Neil Postman (2000) they are seen by our account as literally 'the milieux within which media practice cultures grow'.

Altogether, we think it is possible to interpret mediatization processes as a special case of *generational succession as carrier of cultural change* in terms of Mannheim's theory of generations (Mannheim, 1964/1928). The specification conducted here lies in the narrowed focus on specific *social worlds* or selected *life-world issues* and their intermingling with changing media technologies. Accordingly, the media generation units that we postulate are larger collectives of social actors being 'formed' by similar but partly asynchronous first experiences with media technologies, which intersect with different forms of social inequalities. As the outcome of this formative process, we assume actors to develop similar *media related practice orientations*, in other words a common *modus operandi regarding their everyday use of media technologies.* In the long run and from a societal perspective, larger formations of such media generation units are assumed to emerge and expected to exhibit their own 'lifecycle' in history: They will all pass through a phase of *emergence*, a phase of *stability* and finally a phase of *submergence* across history due to the mere accumulation of different historical cohorts, that nevertheless adhere to different 'historic centers'.

1.4. *Media repertoire patterns as empirical indicators of media generation units*

Since the postulated media generation units are on the one hand only loosely coupled with actual cohorts and socio-demographics, and on the other hand only loosely coupled with the historical advent of single media technologies, too, they are difficult to discover empirically without touching the Scylla of 'sociodemographic absolutism' or the Charybdis of 'technology absolutism' (Vittadini, Siibak, Reifová, & Bilandzic, 2014). The stated problem has often been bemoaned in empirical papers of the generational discourse but it also has until now only seldom been addressed with new methodological approaches. Instead, there is still often the well-known 'unwanted regress' to comparing age cohorts (Bolin & Westlund, 2009; Kalmus, Masso, & Lauristin, 2013).

An advanced form of media repertoire analysis on basis of the media generation unit approach advocated here could form a fresh solution to this well-known problem. The basic rationale is a dialectical premise about the relationship of media repertoires and media

practice converted into a *causal latent variable model* (Borsboom, Mellenbergh, & van Heerden, 2003): We theorize that each and every media technology or media service application provides different *communicative and social affordances* which explain why people are prone to use them in everyday life. Therefore, in the long run, actors will develop a personal 'technology menu' that best suits their practical needs acquired in their formative years. Its overall *structure regarding its inherent relationships between media technologies*, rather than the use of a single technology will therefore indicate underlying practical orientations. Even in spite of possible slow repertoire adaptations across lifespan, we assume the pattern to always reflect an underlying *modus operandi*. Accordingly, the idiosyncratic empirical media repertoires of actors, measured at a certain point in time and denoting their habitually preferred 'set' of media technologies, should in effect form a good set of *reflective indicators* (Borsboom et al., 2003) for their personal habitual orientation regarding 'what media are able to do for them' in general. In other words: We assume that a person's long-term habitual orientation towards media use necessary leaves substantial traces in their media repertoire pattern *without being directly reducible to them*.

Empirically, each and every repertoire itself is still seen as a complex outcome of the intersection of generational, ontogenetic and life-phase related processes. So effectively, in the methodological spirit of Pratschke (2003) and in line with Mannheim's (1964/1928) basic idea of such units, we assume *not identity* but a fuzzy *causal relationship* between individual media generation unit membership and (resulting) individual media repertoire. Therefore, the actual form and prevalence of media repertoire patterns in society may be interpreted as *causal traces of long-term cultural change* which legitimate the empirical discovery of such patterns as an important starting point for any kind of mediatization research.

The model presented in **Figure 1** *formally* operationalizes the 'loose coupling' of media generation units to generational and social location. It represents a reflective indicator model of generation unit membership that causes empirical repertoire patterns and is itself dependent on a kind of 'preforming' through generative milieux. All the model's paths, except for the regression from class membership probabilities on generative milieu variables represent mere transition probabilities. While 'metamorphoses' of empirical repertoire patterns between time points are assumed to be possible with certain 'inertia' along life-phases and technological change, underlying orientations are assumed to stay relatively stable, until major changes in life circumstances interfere and lead to transitions between unit memberships. As described in the following, newer forms of computer based probabilistic data mining techniques in the methodological tradition of Lazarsfeld & Henry's (1968) *latent structure analysis* enable us to realize empirically such a complex conception in form of a computer based pattern recognition approach that works on long range data regarding everyday media use.

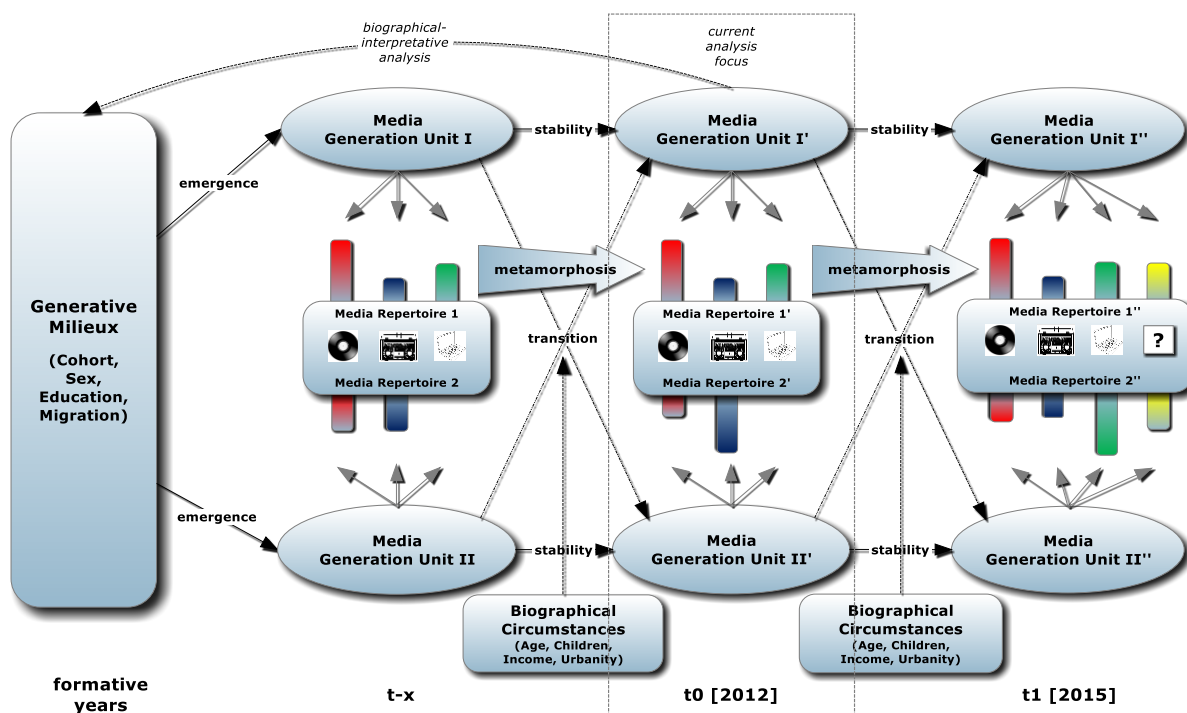**Media repertoires as reflective causal indicators of media generation units' lifecycle**

Figure 1: Latent causal variable model of media generation units

2. Empirical example part 1: Discovery of culturally meaningful audio media generation units by latent class analysis of representative survey data on audio media usage

2.1. Research aims and theoretical premises

The aim of the first part of the study reported here is to empirically discover culturally meaningful audio media generation units within the actual German population in order to (1) learn about the actual fragmentation of music audiences in Germany in terms of media technology use and (2) in order to gain proper analysis objects for the interpretive-reconstructive endeavour in part 2 of our study which aims at explaining the historical emergence and interpreting the social meaning of the discovered media generation units.

In accordance with our reading of the generation problem justified above, the media generation units to be discovered are assumed to manifest themselves empirically in similar patterns of habitual media technology use related to the life-world aspect in focus, as in this case, 'everyday listening to music'. Therefore, we consider it reasonable to limit our analysis to patterns in everyday *audio media* use. But this doesn't necessarily narrow the scope: For matters of terminological simplicity, we employ the term *audio media* here to refer to all media technologies that may in principle be used for everyday music listening, even if some of them were originally meant for different purposes (see item lists in **Figures 3–5**).

2.2. Methods employed

2.2.1. Sample structure and survey procedure

In January 2013, n = 2000 inhabitants of Germany from 14–93 years were contacted in the course of a population-representative, multiply stratified random telephone interview survey.[2] Technically unavoidable distortions in sampling probabilities 'below household level' were corrected a-posteriori employing a sampling weight calculated on basis of micro-census data on German population structure. In effect, the sample at hand should adequately represent 'all members of German households from 14 years onwards in January 2013'.

The standardized telephone interviews lasted about 15 minutes. They comprised of 44 questionnaire items regarding audio media use. These were divided into three main blocks, namely *audio sources*, *audio devices* and *audio emitters*. The rationale behind this was the subject-matter of audio media technologies under research: Technically, any act of mediated music listening always requires some kind of a *source* that provides somehow coded acoustic information containing the music to be played back. Additionally, some kind of playback *device* is needed to decode the source information and allows music playback control in terms of search, start, stop, and sound control. Finally to make the music become audible, some kind of *emitter* device is needed which is connected to the playback device, such as headphones or as loudspeakers. Since these three partial functions of formerly integrated audio devices tend to be 'decoupled' with digital technologies, we decided to ask for them separately in three blocks.

Within the telephone interview, after a short explanation of the respective item block, subjects were asked with every item whether they had used the technology referred to during the year 2012 for 'self-administered listening to music' or not. If so, they were additionally asked if they had used it *daily, weekly, monthly, or just once in the last year*. The rationale behind this approach was that the threshold for a possible habitual use was regarded as being potentially different with every technology. Accordingly, we tried to leave that question as open as possible by employing ordinal scaling from years to days for every item. The telephone questionnaire was finished by 11 further questions with regard to socio-demographic data about generational and social location as well as actual life circumstances. These were cohort, sex, education, household income (5-point-discretized), migration status of participants and their parents, household size and number of children in household. Additionally, a 5-point-scaled urbanity index ('BIK region size class') for the living area could be deduced from landline telephone number prefixes and by asking for the respondents' postcode. The information on migration status of participants and their parents where coded into a single new migration-index based on the arithmetic mean of all three items.

2.2.2. Methods of data analysis

In order to classify the data at hand into media repertoires, a latent class analysis (LCA) with covariates (Collins & Lanza, 2010a) was conducted. LCA is a classification method suitable to find 'ideal types' (Hagenaars & Halman, 1989) originally developed by Paul F. Lazarsfeld under the title of *latent structure analysis* (Lazarsfeld & Henry, 1968), while estimation methods and advancements in contemporary software packages are based on structural equation modelling, log-linear analysis and latent hidden markov models (Collins & Lanza, 2010b). LCA may also be considered as a kind of *data mining* technique, since it is able to discover hidden latent dependencies within complex multivariate datasets. In its mathematical basis, it is a purely probabilistic approach to classification, effectively sorting observational units into classes of most similar patterns, without (unless wanted) introducing any parametric assumptions regarding the multidimensional semantic space formed by the empirical indicators: As opposed to hierarchical cluster procedures it treats patterns as mere positions in probability space and estimates a fuzzy class membership probability for every member of the sample. In the basic LCA approach, class membership is assumed to be caused by homogenous patterns of weighted item scores which are in turn 'contaminated' by randomly distributed errors of different degree, thereby directly reflecting our theoretical conception that individual media repertoires are each completely idiosyncratic and only loosely coupled to a media generation unit formed by a shared common orientation.

When conducting LCA in our case, the whole data of the 44 ordinal items on everyday audio media use were employed as *indicator variables* directly constituting class membership on basis of mere rank-ordered probability thresholds. Additionally, data on socio-demographics that seemed suitable for this task (cohort, sex, education, income, urbanity, migration status, number of children in household) were employed to represent *generational and social location* as well as *life circumstances* in the form of *passive covariates* implying that they were specified to only log-linear correlate with class prevalence without being class indicators themselves. In the process of model estimation this has the effect that such variables help with interpolating class membership of individuals in cases of estimation uncertainty or missing data points on the indicator variable set and thereby help to 'refine' a basic model estimation. In this respect, they take part in constituting audio repertoire membership 'in the first instance' (and in the spirit of our meta-theoretical conception of a 'loosely coupling'), which is why they should not be regarded as 'independent variables' that cause 'effects' in later analyses. By employing the MPLUS 6.12 software package, model estimation itself was realized through Maximum Likelihood Estimation with robust standard errors (MLR). Single missing data points on the covariates had been replaced by the population mean before, while missing data points on the indicators where estimated from the model itself.

2.3. Empirical findings

2.3.1. Overall results of latent class analysis

In order to get final results in a latent class analysis, it is necessary to compare several possible estimated solutions that amount to different numbers of classes. In our case, eight solutions were compared for empirical fit to the data set on basis of so-called *information criteria*. These indices measure the 'distance' of the empirical dataset to the estimated dataset implied by the hypothetic model (Geiser, 2010). Typically, a global minimum of an index indicates the best fitting model. In most cases, these measures quickly converge to a transition point after several steps, so only a few potential solutions have to be considered. While chi-square based fit-indices and likelihood-ratio hypothesis tests have been developed for testing if an LCA solution 'significantly' differs from empirical data, these would have imposed additional distribution assumptions that couldn't be justified in the present case because of the sparseness of the 5^{44} cells comprising contingency table. Therefore, selection of the final class solution was realized in the present case on basis of information criteria and the first 8 class solutions only. To avoid the problem of 'local minima', every solution found was replicated at least 10 times with different sets of random start values.

Table 1: Fit-indices and entropy values of estimated latent class solutions (44 ordinal items, 7 covariates, n=2000)

Number of classes	Entropy	AIC	BIC	BIC$_{adj}$	mean calc. time (hh:mm:ss)
1	-	192714.846	193779.018	193175.378	00:01:11
2	0.936	131829.104	133845.429	132701.689	00:03:46
3	0.910	129618.937	132665.828	130937.510	12:18:18
4	0.907	128260.302	**132337.759**	130024.863	40:33:47
5	0.912	127371.044	132479.067	129581.594	117:09:41
6	*0.925*	*126586.617*	*132725.206*	***129243.154***	*299:03:41*
7	0.924	126241.590	133371.539	129327.149	664:28:38
8	0.926	**126052.391**	134173.699	129566.970	743:15:02

Best solutions in terms of model fit are set in **bold,** the final solution is set in *italics*.

A comparison of the estimated coefficients in **Table 1** shows pronounced minima of an information criterion with the 4 class solution (Bayes Information Criterion – BIC) and with the 6 class solution (sample size adjusted Bayes Information Criterion BIC$_{adj}$), while the AIC could have still grown smaller with additional solutions we did not estimate. We finally decided for the 6 class solution because it additionally exhibited a relatively high class separation coefficient (Entropy = 0.925 vs. 0.907 with 1 being the theoretical maximum). This coefficient amounts to the mean probability of all class members to be full members of their respective class (and not partially of another one) within the respective solution and therefore mirrors the 'inverse overlap' of class membership probabilities. Finally, we were

also aiming to reach a compromise between BIC and AIC in terms of model parsimony which implied using the BIC_{adj}, too.

2.3.2. Correlations between latent class membership and socio-demographics

During LCA model estimation, 7 socio-demographic variables had been employed to predict class membership. In order to reconstruct and rank their actual contribution to the formation of the repertoire classes, we conducted a stepwise multinomial regression from class membership on covariates employing likelihood ratio tests for each model term. The final model was able to retrodict approximately 60% of variance in class memberships (see **Table 2**). In this model, class memberships were treated as *fixed* in terms of being in the most probable class only and not having a fuzzy membership anymore. This was done on basis of the observed high measures of class reliability (C1 = 0.96; C2 = 0.96 C3 = 0.95; C4 = 0.94; C5 = 0.95; C6 = 0.96).

Table 2: Model term tests of stepwise multinomial regression from class membership on covariates

Model term	Deviance	X²	df	p-value	Nagelkerke's R²	Δ R²
Intercept	5268.734	128.755	5	< 0.001	-	-
Birth Cohort	6178.221	1038.241	5	< 0.001	50.1 %	50.1 %
Income	5222.471	82.491	5	< 0.001	54.2 %	4.1 %
Education	5225.963	85.983	5	< 0.001	56.2 %	2.0 %
Sex	5223.121	83.142	5	< 0.001	58.1 %	1.9 %
Migration index	5181.203	41.224	5	< 0.001	59.0 %	0.9 %
Urbanity (BIK)	5158.570	18.591	5	0.002	59.4 %	0.4 %
At least 1 child in household	5149.775	9.796	5	0.081	59.7 %	0.3 %

Nagelkerke's R² = 59.7 %; overall model LR-test p<0,001. 'generational milieux' variables in *italics*.

As can be seen in the results in **Table 2**, in the sense of our theoretical model, the generational milieux variables clearly outperform the actual life circumstance variables in terms of predictive power regarding class membership. The only exception seems to be household income, but this can be regarded as 'mixed' indicator, depending partly also on social origin. Since all these variables were effectively included a-priori within the estimation of the LCA model, and since the contingency table for the model is very sparse, the results should not be considered as successful hypotheses checks if these variables had an 'effect'. Instead, they should be considered an analysis of which variables were able to effectively contribute to identifying homogenous generational units when estimating the latent class model.

Due to lack of space, we cannot report the complex non-parametrical relationships obtained in the (6¦2)·7 possible pairwise comparisons of classes regarding covariate values. Still these helped us with preparing the interviews we conducted with class members in the 'qualitative' second part of this study. But since already 50 % of variance explanation alone

could be attributed to the influence of *birth cohorts* (see **Table 2** and **Figure 2**), we are able to present an *ordinal* interpretation of the repertoire classes in terms of generation succession in the following paragraph. In order to describe this succession also with figures, we employ the non-parametric measures *median*, *interquartile range* (IQR), as well as *min* and *max* to interpret the relationships between media repertoires and birth cohorts. This is done on the rationale that we are confronted with non-normal distributions and largely differing sizes of birth cohorts in the German population.
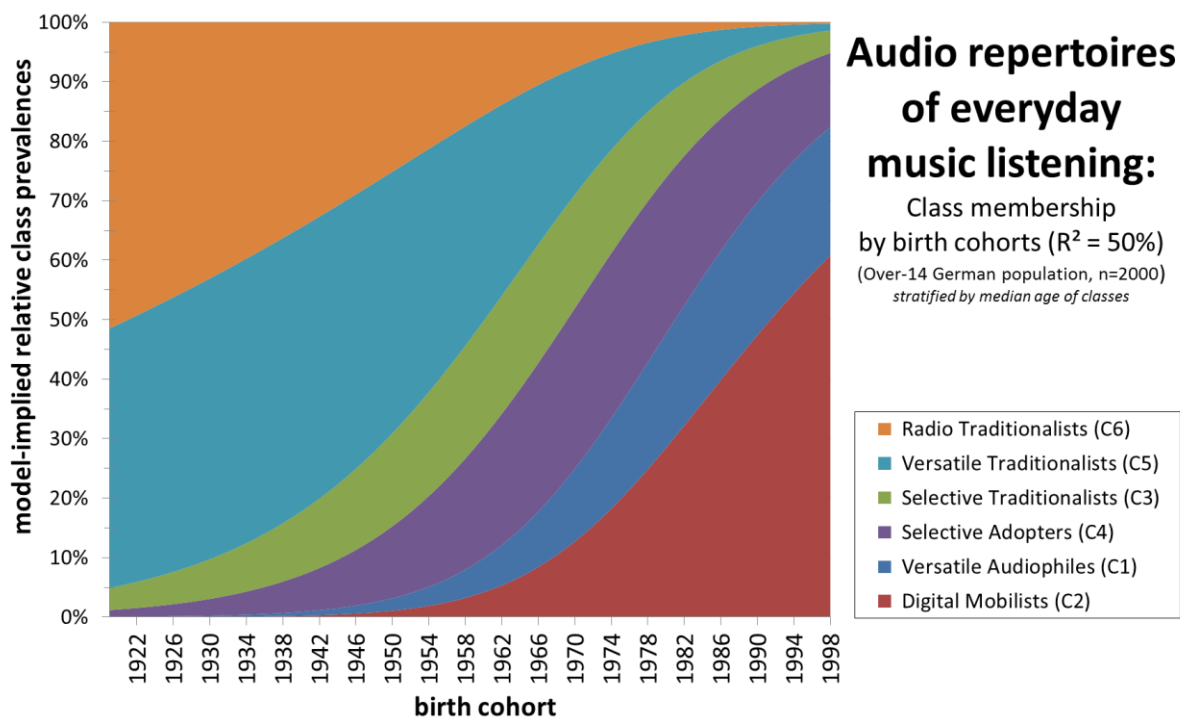
Figure 2: Audio repertoire class membership by birth cohorts

2.3.3. Description of latent class profiles

Due to the strong log-linear correlation between age cohorts and repertoire membership ($R^2 = 50\%$), we describe the latent class profiles along their generational succession in terms of their members' birth cohort median. The qualitative class profiles described in the following may also be inspected visually in **Figure 3** (item block 'Audio Sources'), **Figure 4** (item block 'Audio Devices') and **Figure 5** (item block 'Audio Emitters').[3] In order to ease quick comparisons, the 3D bar charts depicted only show the probability of using a technology *at least weekly*, since on this level of intensity of media use, the largest differences between item response patterns across classes could be found. **Figures 6–8** additionally show comparisons of repertoire class profiles C3 and C5 in more detail in order to support the discussion in Section 3. It is important to acknowledge, that the following class profile descriptions have to be regarded as descriptions of empirically non-existing *ideal-types* that represent the probability attractor of the respective class according to the estimated latent class model: In practice, each and every empirical media repertoire will differ in certain single aspects due to biography and life-phase related effects. Nevertheless

the patterns are homogenous enough to indicate a common repertoire class membership, which we in turn interpret as indicative of membership to the same audio media generation unit.
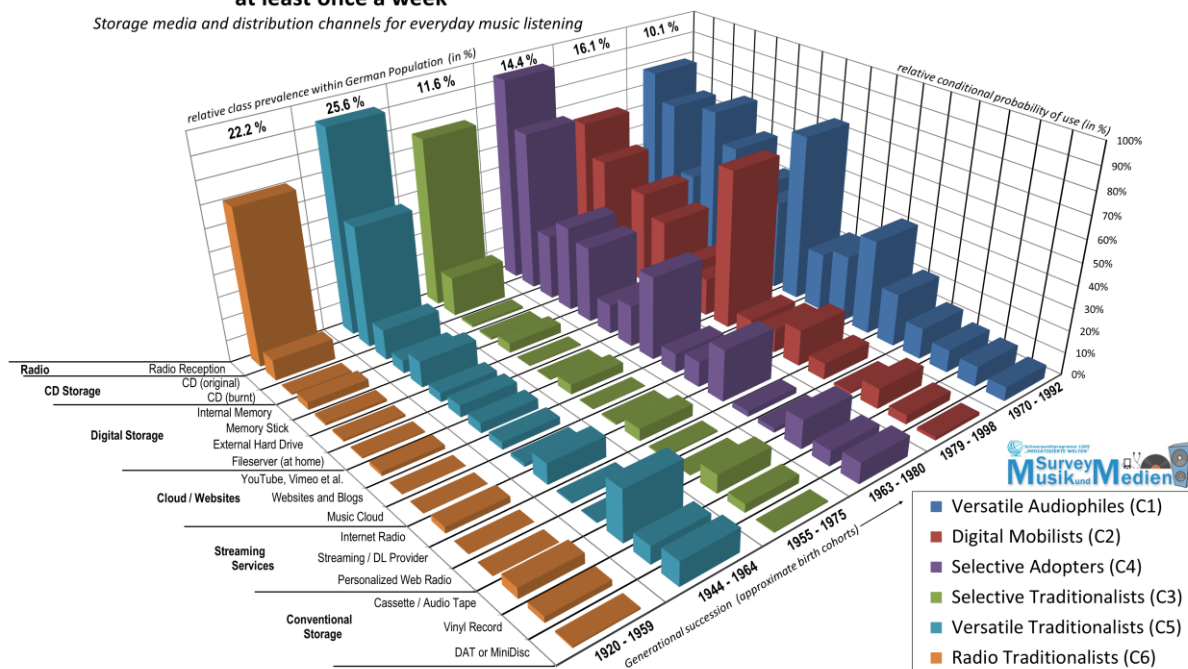

Figure 3: Repertoire class profiles for Audio Sources

Repertoire class C6, the *Radio Traditionalists* is a class represented in various age groups but still the 'oldest' of all units. Most of its members were born between 1920 and 1959 (min to upper quartile). They constitute 22.2 % of the German population between age 14 and 93. Compared to other audio media user types, they only seldom use audio technologies: Radio broadcasting is the major and nearly sole audio source in their everyday music listening. Typical devices for reception are analog radios, car radios and boom boxes. In addition, Radio Traditionalists only casually listen to CDs, vinyl records and audio-tapes. Apart from internal device loudspeakers music is mainly emitted HiFi speakers or mono active speakers. Their formative years typically took part during the era of radio, television and radiograms ('Musiktruhen'), as well as also during the later introduction of HiFi stereo units.

Repertoire class C5, the *Versatile Traditionalists* constitutes the most prevalent audio repertoire with a total of 25.6 % of the over-14 German population. Most of their representatives are born between 1944 and 1964 (IQR) and prefer radio and CD for music consumption. Furthermore and in contrast to other user types they still haven't disposed of their music cassettes and vinyl records, which are used at least occasionally. Apart from analog radio devices music is played and received most frequently via car radios, HiFi component and HiFi compact systems. Eventually, the music typically emanates from stereo

HiFi speakers, internal and active speakers. This generation unit may be typified by their experience with analog audio storage media such as vinyl records, audio-tapes and compact cassettes and the use of radio in the car during their formative years.
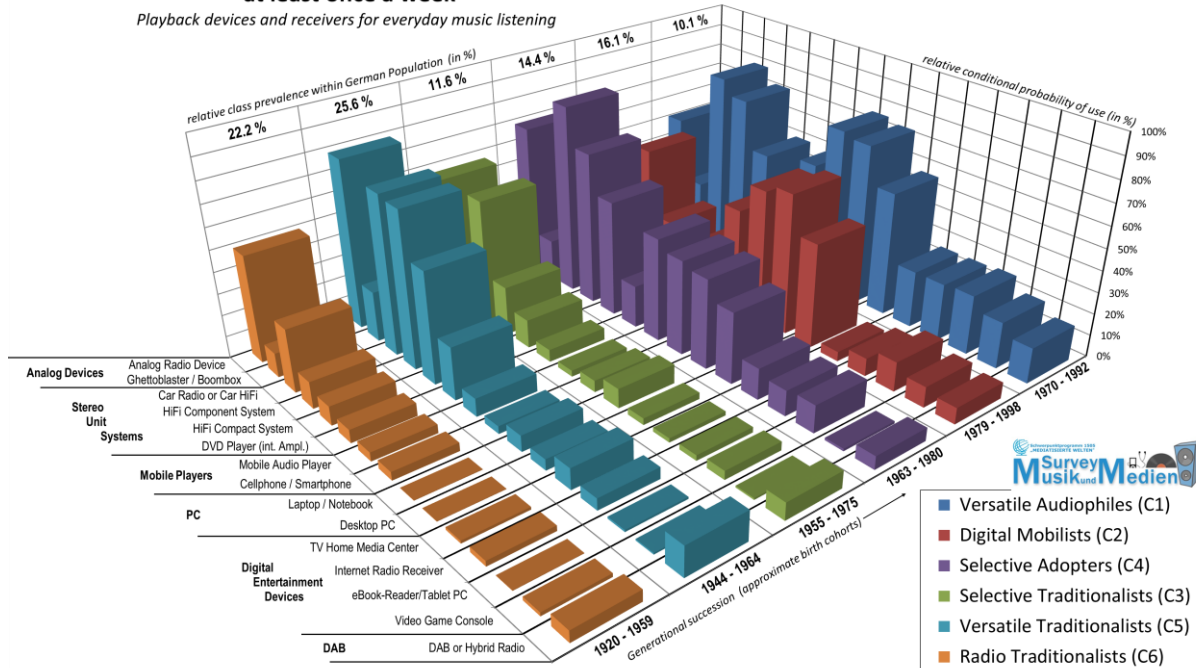

Figure 4: Repertoire class profiles for Audio Devices

11.6 % of our participants form the repertoire class C3, the *Selective Traditionalists,* who are typically born between 1955 and 1975 (IQR). Radio is the dominant audio source used at least daily. Rather occasionally they use CDs, audio-tapes and vinyl records as well as free video streaming services (YouTube, Vimeo, Dailymotion etc.) and Internet Radio. Beside analog radio devices, car radio, stereo systems and boom boxes only a few Selective Traditionalists also use mobile devices such as laptops or smartphones to listen to music in everyday life. Headphones are very rarely used. While generally only seldom listening to music, it is more likely that internal speakers from TV or other devices or from HiFi stereo units are used. During their formative years, most members of this class were socialized with radio and analog audio devices and storage media while some of them also experienced the Walkman and CompactDisc introduction.

With its members typically born between 1963 and 1980 (IQR), the repertoire class C4, *Selective Adopters* forms 14.4 % of the total population representative sample. We encounter yet another user type who maintains the radio as an indispensable musical companion within the daily routine. However, more than 70 % of its adherents listen to original CDs at least on a weekly basis. In this respect, they may be regarded as the first 'digital music generation'. They also occasionally access digital music files per free video

streaming services, and are using computer storage devices for accessing the audio material they listen to. Self-compiled CDs and Internet radio complement the repertoire. Alongside analog radio devices and stereo systems members of this repertoire also tend to also use mobile players, laptops and smartphones regularly to listen to music. Finally, their use of car radio exceeds that of all other user types. The typical audio emitters of the Selective Adopters are HiFi stereo speakers and internal speakers as well as earphones.
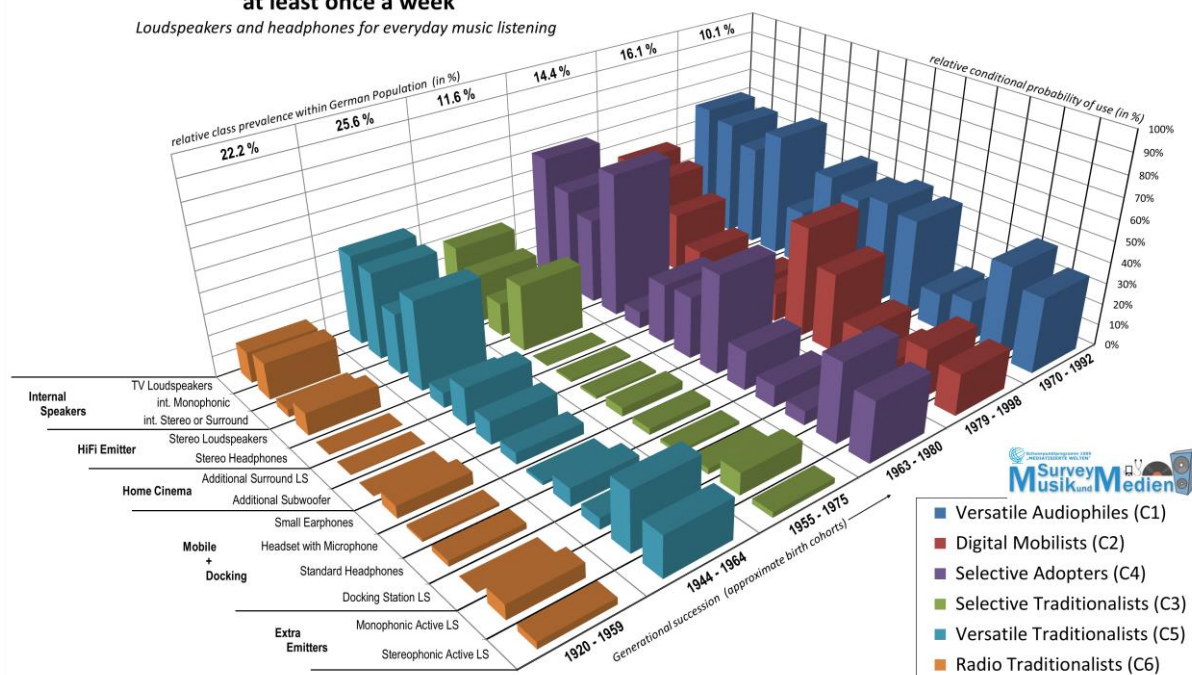

Figure 5: Repertoire class profiles for Audio Emitters

Repertoire class C1, *Versatile Audiophiles,* whose members were typically born between 1970 and 1992 (IQR) represent the least prevalent user type with a total of 10.1 % in German population. Apart from being the first generation unit grown up with digitized music during formative years, they also are interesting in terms of their pattern: Not only do they access the most comprehensive repertoire of audio technologies; they also exhibit the most intense music use in everyday life. Whether original or self-compiled CDs, radio, various digital storage media or cloud, website and streaming services – the majority of the Versatile Audiophiles uses all of them at least once a week. These audio sources are accessed via car radio, HiFi systems and analog radio devices as well as by manifold digital mobile devices, desktop PC or digital entertainment media. Regarding audio emitters they also represent the 'omnivores' amongst all repertoires. On top of that they outperform the other user types in terms of their relative frequency of HiFi headphone and subwoofer use.

Typically born between 1979 and 1998 (lower quartile to max), the repertoire class C2, the *Digital Mobilists* finally constitute the 'youngest' user type representing 16.1 % of the German Population. Its members access free video streaming services to listen to music

most frequently in comparison to all repertoire classes. Their preferred music playing devices are smartphones or mobile players as well as laptops and desktop PCs. Rarely used are analog radio devices, boomboxes, car radios and HiFi components or compact systems. Finally, the Digital Mobilists listen to their music predominantly via earphones, headsets and internal device speakers. They may be the first audio generation unit that grew up with digital social media music use during their formative years, although they only exhibit a very small distance to the Versatile Audiophiles in terms of cohort membership that is not even statistically significant.

2.4. Discussion: Interpreting results in terms of 'audio media generations'

We think that the presented results are able to demonstrate the suitability of LCA-based media repertoire analysis for the discovery of culturally meaningful media generation units. While mainly constituted by actors' everyday media use they still exhibit a dependency to generational and social location, as well as actual life circumstances, as proposed in our meta-theoretical conception explicated in Section 1. Also regarding the obtained latent profiles of repertoire classes, the differentiation we observe seems highly plausible: Not only do they follow the inherent logics of technological innovations at the presumed time of their historical emergence, but we also discovered larger ensembles of audio generation units that together seem to represent audio-media-generations-as-actualities: For example, the three traditionalist classes together seem to form a homogenous ensemble that easily differentiates from the three more 'digitally influenced' patterns. So we think that the identified audio repertoires not only qualify as examples for culturally meaningful media generation units, but also serve to understand the long-term influence of digitalization on everyday music listening. Nevertheless, from the perspective of our critical-realist conception of the media generation problem, we have at this point just *identified* the empirical phenomena of interest, namely the media generation units with respect to our research question. In the following methodological step, the discovered empirical phenomena need to be explained with the help of interpretive-reconstructive analysis to work out the social processes that brought them about.

3. Empirical example part 2: Interpreting audio media generation units by documentary analysis of narrative interviews with class members

3.1. On the role of Documentary Method within media generation unit analysis

Documentary Method (Bohnsack, Pfaff, & Weller, 2010), which we apply here to interpret audio media generation units originates in Karl Mannheim's sociology of knowledge (Mannheim, 1924) as well as ethnomethodology (Garfinkel, 1984). It conceptually aims to overcome the classical dilemma of qualitative research between subjectivism and objectivism: While a strategy of systematizing the subjective meaning, as done by

theoretical coding in Grounded Theory (Corbin & Strauss, 2008), necessarily remains within the borders of what is taken for granted by common sense, the objectivistic claim that the researcher has a privileged access to reality is not without problems either. When approaching this problem, Mannheim differentiated between two levels of knowledge: While the *communicative knowledge*, the generalized, discursive ‚common sense' can be explicated by actors very well, the *conjunctive knowledge* which underlies everyday practice and gives orientation to action is frequently not accessible by consciousness or even quasi-naturalized. Luckily, while actors are often not able to express these structures directly, they are still often communicating them implicitly. Accordingly, Documentary Method, as developed by Ralf Bohnsack (Bohnsack, Nentwig-Gesemann, & Nohl, 2007; Bohnsack et al., 2010), assumes that an utterance always has a second level of meaning to which the actor does not necessarily have access. Though the method aims to reconstruct this implicit knowledge and therefore reaches beyond the literal or immanent meaning, the actor's knowledge remains the basis of analysis. This implies a change in the analytical stance: Rather than asking *what* is said, the approach asks for *how* something is said, thereby referring to the *modus operandi* within which a verbal expression is formulated. Often, this kind of inner logics of a social situation from the actors' perspective are mirrored in the inner logics of their speech acts. In the context of the present project, we consequently hope that the music media related action orientations may be reconstructed from conjunctive knowledge appearing in the material of interviews we conducted with selected class members.

3.2. Description of the two cases in focus

In the following, we try to show how Documentary Method analysis of narrative interviews (Nohl, 2010) is able to methodologically differentiate between references found in the interview material to either an *audio-media-generation-as-actuality* r (shared discursive knowledge on audio technologies) or to a common membership in the same *audio media generation unit* (shared practical knowledge acquired during own use of audio media). We try to exemplify this approach by drawing on transcripts of two narrative follow-up interviews we selected from 34 interviews conducted so far with members of the original survey sample. These informants were selected due to their high-class membership probability, recalled by phone and asked whether they were open to be questioned in a personal household interview.[4] The following extracts were translated by the authors of this paper, in order to keep the 'oral style' of original German language.

Both informants in focus stem from similar birth cohorts and therefore should in theory have been confronted with a similar media generation location during their formative years: Mrs. Wieland was born in 1950 and is – rather untypical (cf. ¶ 2.3.3) – a member of the *Selective Traditionalists* in our survey sample, while Mrs. Behnke was born in 1955 and was typified by repertoire analysis as a *Versatile Traditionalist*. Both grew up in the Federal Republic of (Western) Germany, completed a college degree and were

continuously employed for over thirty years. They are both married since they were twenties, live together with their husbands and have already grown-up children.

During the interview, Mrs. Wieland recounts her early life experiences vividly as being influenced by her parents 'having lost everything' in the course of World War II. Similar experiences, typical for the post-war period, are also remembered by Mrs. Behnke, who recollects that she lived in an emergency home, in her childhood. There are additional similarities regarding the socialization with music and media technologies: Both women depict vivid anecdotes of domestic music making and visiting private parties where the guests used to bring records along that were played back and collectively listened to.
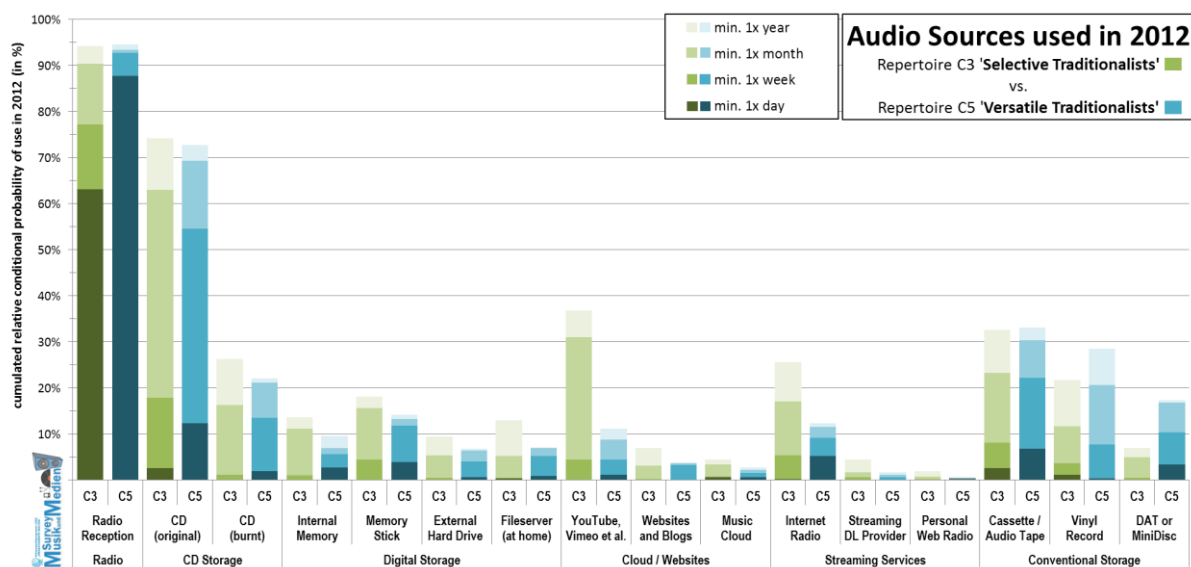

Figure 6: Repertoire class profile comparison C3 (e.g. Mrs. Wieland) vs. C5 (e.g. Mrs. Behnke) for Audio Sources.

3.3. Example 1: Generational identity vs. generational habitus

When being explicitly confronted with a cohort-related stereotype regarding older people's difficulties with new technologies, Mrs. Wieland is eager to distance herself quickly from this cliché with regard to her own audio technology user habits:

> I: I'd like to know how you relate to, well, the opinion that is sometimes heard, that older people tend to struggle with new technologies. Obviously, you do not.. but how..
> W: (interrupting) No, not at all!
> I: How do you see that in general and especially regarding yourself?
> W: Yes, well, I know, ah.. ah.. ah.. that not anybody uses them naturally, but for me they are just fantastic!

According to the basic tenets of Documentary Method, the first step of an analysis of narrative material is termed the so called *reformulating interpretation*. In this, the researcher tries to take what was said 'at face value' but nevertheless interprets all

statements that relate to the research question at hand by drawing on suitable comparative empirical horizons of other cases. So basically, this step of analysis is kind of similar to the open and axial coding in grounded theory approach. In the present case, we accordingly take an answer from Mrs. Behnke to a question aiming at a similar direction as the issue-related *tertium comparationis*:

> *I: Some people say that women have difficulties with new technologies, do you?*
> B: Not at all. I am sorry. I have no problems with using new technologies. Well pfft: it's comprehensible. No, actually not. Actually, I have to say I have.. it is not that I do not get along with them! Well, regarding my mother its 'yes', because she is not interested in them. And well, regarding the girls, say, the younger generation, they are even more competent.

As we see, Mrs. Behnke also initially rejects a well-known stereotype regarding an alleged weakness with new audio media technologies that could be applied to her person (even when in this case, we are actually dealing with a gender and not an age stereotype). Doing further similar comparisons between both cases and trying to reformulate *what* both informants effectively have said here regarding their actual competencies with using 'newer' audio technologies, we finally came to the conclusion that both tend to construct their personality in explicit opposition to these stereotypes: They both regard themselves as 'competent users' of new audio media technologies.

These self-theories and identity constructions do not surprise, since both women's experiences in the formative years were obviously influenced by female emancipation movements of the 1960s and 1970s in Germany (Schildt, 2007, p. 55) which inter alia included the imperative for women to regard themselves as being as-well-able to deal with modern technologies as men and also as being as-well-able to keep up with continuing technological development as their male counterparts. According to the logics of Documentary Method, this 'what-content' of both sequences may be interpreted as 'communicative knowledge', which in this case seems to refer to a shared generational *common sense*. In conclusion, in the self-theories that Mrs. Behnke and Mrs. Wieland have constructed here (and which are also found in similar cases of these cohorts), a common shared interpretational discursive horizon emerges that may be regarded as being constitutive for the shared *media-generation-as-actuality*.

3.4. Example 2: One media generation location, two different music media orientations

The second basic step of Documentary Method, the so-called *reflecting interpretation* deals with the ways of *how* something was articulated in opposition to *what* was said. According to the underlying methodological tenets, this step is supposed to allow reconstructing the

informants' conjunctive knowledge (Mannheim, 1924) shared with other members of the same milieu. In our present analysis it describes *music media orientations* – implicit procedural knowledge stocks that guide the informants' everyday practice now and in future, referring to a certain acquired and refined modus operandi with audio technologies supposed to be typical for a media generation unit.
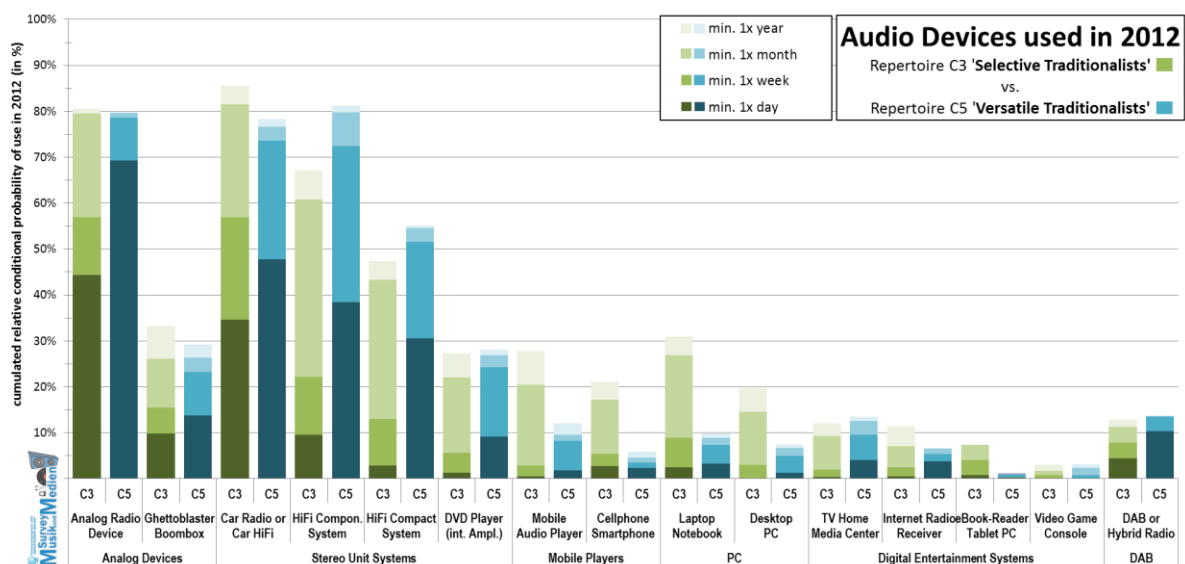

Figure 7: Repertoire class profile comparison C3 (e.g. Mrs. Wieland) vs. C5 (e.g. Mrs. Behnke) for Audio Devices.

Analysing Mrs. Behnke's verbal sequence in this regard, we may quickly discover that her *communicative knowledge* seems to point in a quite opposite direction compared to her *conjunctive knowledge*: Already in her tauntingly articulated rhetoric excuse 'I am sorry', which is added to the insisting denial 'not at all' we may notice a certain sense of defiance that finally culminates in the 'well pfft'. By further introducing the 'it's comprehensible' and by employing the term 'actually' twice in the following sentences, Mrs. Behnke begins with slowly relativizing her own self-theory that seemed so clearly put before. She finally ends with a statement that nearly contradicts the appeal of the beginning of the very sequence: 'it is not that I do not get along with them!' Furthermore, she finally tries to represent herself and her own audio technology competencies as standing in a quasi-natural row of different women generations with abilities that should be altogether seen as 'competent' and are only 'accidently' differing slightly due to different cohort membership.

When turning to another sequence of the interview with Mrs. Behnke that deals with mobile MP3 players we may find further proofs of the aforementioned divergence between both knowledge stocks:

> B: I also did not get along with these small MP3 thingys. Well that was a kind of technology that was just too fiddly for me. It was also not like.. something

having a remote, with large buttons, that is good. Something being manageable, but these small fiddly things? Never!

I: So where did yours end up now?

B: I think in the drawer over there. Of these, we have an opulent collection: Of course, everyone once had one. Yes. And mine is now there.

I: Unused?

B: Yes, as I told you, it's just not my type of thing; it was too fiddly for me. I never.. what I was planning to listen to never came out of it. And then I just thought: 'Come on Silke, just leave it.'

The verbal term that Mrs. Behnke is employing here in order to refer to the namely type of music playback devices already documents how little practical meaning they really have in her everyday life. Interestingly also from a Peircean pragmatist perspective, they are regarded by her as just 'things' not being able to deploy any useful practical effects. The additional attribution of mobile MP3 players as being 'too fiddly' also documents a kind of embodied haptic impression of the failed contagion with technology (Schäffer, 2007) that Mrs. Behnke experienced when practically failing to bring her modus operandi regarding music media in alignment with the device's affordances.

She closes with a description of how actual non-agreement with this habitual orientation has led to an impression of MP3 players as a 'resistive' technology towards her own practical aims when listening to music: 'What I was planning to listen to just never came out'. By finishing this explanation with a kind of acted out inner monologue ('Come on Silke, just leave it.') she also marks performatively that the issue of mobile MP3 player use is out of question for her at present and is not likely to play any important role for her in the future either. Nevertheless, she still seems to be generally quite open to future possibilities of digital music devices, but only if her husband or her children provide and support her with access to it: 'Well I likewise have music on the computer. To do something good for me, they used to load a lot on it in order to allow me to play it back […] And I said: I appreciate that. But now, make it work!'

Mrs. Wieland, the *Selective Traditionalist*, also addresses the issue of MP3 player use when asked for different situations of everyday music in the course of her interview:

W: And then in holidays, well. I really have.. well, how were these small precursors of iPods called again? I have such from Samsung. 'MP3 player'?

I: (confirming) Mh.

W: Yes, yes. It is also able to.. one was already able to synchronize that with iTunes somehow, right? Yes, that I did. But now I am certainly not using that very often or even not anymore, because of the ah, ah, ah, iPad, right.

While having initial difficulties with finding the correct name for the playback device type she wants to refer to, Mrs. Wieland is still able to formulate a specific technological

affordance that had made mobile MP3 players which are used far more frequently by Selective Traditionalists (see **Figure 7**) to appear as useful devices for her in the past: ('one was already able to synchronize that with iTunes somehow'). While the 'somehow' indicates that the actual technical procedure has stayed somewhat obscure, the phrase also documents that it nevertheless still 'somehow' worked for her in the long run.

Altogether, the conjunctive knowledge structures derived from this sequence of the interview with Mrs. Wieland appear to stand in clear contrast to Mrs. Behnkes practical knowledge regarding similar mobile digital audio devices. This initial conclusion may be extended further by the analysis of other interview sections referring to the first music listening experiences with the iPad that Mrs. Wieland and her husband got as a Christmas present from their daughter:

> W: She already had one for herself and obviously thought: 'This is something well-suited for my parents.' Well, then she gifted us with one. It was really fantastic: We initially started – well I started to get familiarized with it immediately. Not Günther, he only uses it for reading sometimes when I push something on it for him and say: come on, look at that or read it.

Similar to Mrs. Behnke, Mrs. Wieland also generally prefers to be introduced to new technologies with help from her (assumingly technologically more 'competent') children. But in opposition to Mrs. Behnke, this is experienced as a form of 'getting familiarized with' that is clearly aiming at self-directed technology use in the long run and this also sediments into her narrations about these experiences: The important difference to Mrs. Behnke's expectations ('now make it work!') documents itself in the use of the term 'becoming familiarized' that is etymologically related to the idea of growing relationships and 'familiar' social bonds, thereby effectively describing the turnover of a former alien 'technological stuff' to a 'trusted' tool of everyday life.

To take this argument further, when talking about the phase of learning and exploration of the iPad's functionalities, Mrs. Wieland recollects how she discovered its internet radio application. From the perspective of triangulation with the audio repertoire typology we derived from quantitative survey data, the following narrative passage is very illuminative, since the employment of internet radio as an audio source (see figure 6) is indeed far more typical for the *Selective Traditionalists* (25.7 % probability of use in 2012) than it is for the *Versatile Traditionalists* (12.4 %), as is the use of digital mobile music devices in general.

> W: I was totally blown away when I discovered that there is a function of having radio online. That I am able to, ah, ah, listen to every broadcaster in the world and they are even organized into genres. If I am up for classical music, that I am able to, ah, view and change and that every title of the piece is displayed that I am listening to. I find that fantastic. [...] Then I just tuned in higgledy-piggledy,

then I found this Radio R [unidentifiable] and I was really extremely happy about that being playing, right? And then I started to tune in ah, ah, and around everywhere and tried everything at least once.

Mrs. Wieland's verbal interview descriptions communicate very well her spontaneous fascinated contagion with the musical affordances of the Internet radio app, as she describes herself as being 'totally blown away' by them. In her further explicated mind-set
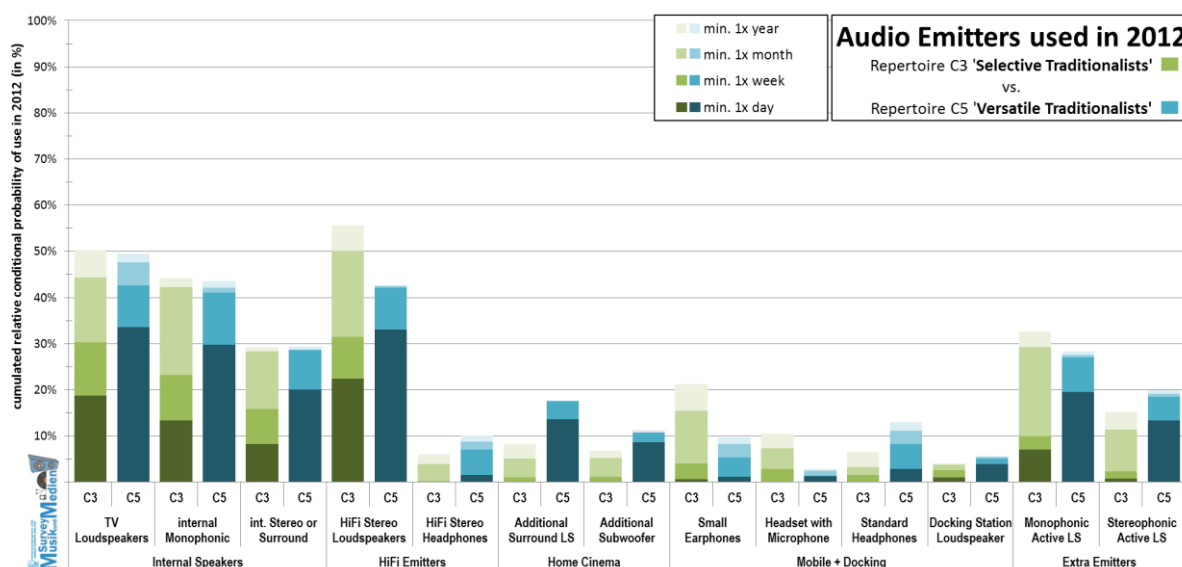

Figure 8: Repertoire class profile comparison C3 (e.g. Mrs. Wieland) vs. C5 (e.g. Mrs. Behnke) for Audio Emitters.

of employing 'trial and error' when experiencing the new possibilities, a specific form of openness and curiosity towards new technologies' affordances is documented that is totally in opposition to Mrs. Behnke's stance of 'now make it work!'. Altogether and in reference to the background theory of media generation as a generic cultural process explicated in chapter one of this paper, this gives rise to the conclusion that with regard to her formative years, Mrs. Wieland has developed a completely different stance towards handling new unknown audio media technologies than has Mrs. Behnke, which justifies their memberships in different media generational units in terms of our meta-theoretical concept developed above.

3.5. Conclusion: Different social locations tend to form different media generation units

With the help of Documentary Method, as yet, we were trying to show in which way Mrs. Behnke and Mrs. Wieland, while stemming from the same media generation location and sharing a common media-generation-as-actuality may indeed be regarded as members of (partly opposing) media generation units. As argued, within the documentary method framework this type of conclusion is justified by those differences we were able to obtain

when analysing both women's conjunctive knowledge stocks pertaining to everyday audio media use with special reference to new digital technologies.

Nevertheless, to complete our argument we still have to develop an ontogenetic explanation for the discovered different modes of orientation when dealing with audio media. This seems difficult, since as mentioned above in 3.2, both women's actual socio-demographic data appear very similar at first glance. But when analysing the biographical narrations given within the interviews of both informants, this impression changes quickly: Mrs. Behnke tells how she grew up in an educated leftist middle class milieu. Along that, she also experienced a comparatively 'rich' technological environment concerning audio media during her formative years. Beside a valve radio her parents had a radiogram with a record changer:

> B: Than we had, what we also had was a record player, right? A wonderful thing, with, ah, some changer being able to play 10 vinyl records at once. Very nice. Yes. Entirely revolutionary. Mh. And then we listened to a lot of music, right. So we, my sister was, is five years older and ah, at the beginnings of the sixties, when twist and beat came up, there was a lot of listening to music and a lot of dancing. There do exist quite wild photos of it. But we are better leaving these out (laughing). So much about that!

With regard to the elliptic structure of the rhapsodic description, 'Very nice. Yes. Entirely revolutionary', it seems like Mrs. Behnke is speaking with the tongue of her father, who was enthusiastic about technology. In this manner she is indeed distancing herself in a way from this enthusiasm. However, her talking passionately and in much detail about listening to music with records in her youth several times during the interview indicates that this was a formative experience for here:

> B: Like I said, audio tape was somehow … vinyl was more manageable, there you could just listen into a track, back there you could. We did this, made music .. ah clubs, kiddie discos in the youth centre. We went off, packed our vinyls, all we had around, also from various friends. And then in the youth centre we did those parties. And there, we played the disc jockey, that was really quite... was really quite … was really nice, nice!

This passage is characterized by a high commitment and a dense depiction. Such 'focusing metaphors' facilitate access to the conjunctive space of experience in a concentrated manner. Identifying such sections permits to get a quick and valid access to the central patterns of orientation. The metaphor of the 'disc jockey' indicates an important orientation framework of Mrs. Behnke: To select and switch music in a playful manner, especially in front of an 'audience', is a pattern which is characteristic for her current music media orientation, as this sequence illustrates:

B: No, so it had to be radio, it had to be something where I could play with radio stations and pick out the finest. Because you can't do that with a CD. Right, you could play radio stations over and over again - I'm doing that all the time to the distress of all (2). We have a radio ah in, one car, we have a transporter, there you can select radio stations via the steering wheel. My family is always highly thrilled when I'm driving. Because, of course I'm selecting what I like. (I: Sure) Yes, for sure! @And then@ sometimes we listen to five different radio stations within ten minutes. (I: Mh). That's just the way it is. Yes. I think, that is the more important.. that you can always select what you like to hear and that is something you obviously can't do with a CD, there you are always sworn into one direction of music or one text and that is boring in the long run. That isn't nice!

This illustrates that music media orientations are not tied to specific technologies: Switching through different radio stations over and over again to select 'the finest' and in this way converting radio from a traditional push-medium into a pull-medium seems to reflect the 'DJ habitus' formed during her youth. The performative social value of this scenario might also provide an understanding of why Mrs. Behnke rejects headphones, which is typical for the *Versatile Traditionalists* (see **Figure 8**).

In contrast, Mrs. Wieland stems from a rural lower educated peasant family and she recollects having to live with her parents 'very, very frugal'. Conversely to Mrs. Behnke, her parents only owned a radio, since, as she tellingly formulates 'in the end buying a record player was nothing vital for living and surviving'. During her holidays she worked as a maid in a hotel to supplement her pocket money: 'Music stuff I haven't bought, I used to buy books from it'. The 'private record parties' she started to attend in order to 'dance and hop' actually took part at her friends' houses:

W: And later at the time of the Beatles and bands like this, there I simply hadn't got the money to go to live concerts. And then we just did those vinyl parties and really listened to music from vinyls. Ah and those aah those ones, those ones were most respected, who had a record player yet, where the ah vinyls could change automatically, that thus was something, something really special.

During her formative years, she moved into a city in order to reach a college degree. There she could finally hear those radio stations playing popular music she had attempted to receive again and again without success at her parents' home. Although her narrations of the romantic atmosphere created by music on evenings spend with boyfriends indicate that music had always been a great enjoyment to her, it seems like she feels obligated to legitimate the purchase of her first own music media device, a cassette recorder, as necessity: 'Otherwise I wouldn't have got information.. without the radio and the cassettes.

They were simply part of it'. The 'narrow' audio repertoire of Mrs. Wieland which is typical for *Selective Traditionalists* seems to mirror this 'taste in necessity" (Bourdieu, 1984).

Consequently, we interpret the obtained differences in music media orientations as being due to differences in the actual social location during the formative years of both women. This gives rise to a first socio-theoretical explanation of how and why the two different audio media generation units whose members' practical experiences we have analysed here may have historically come into existence and may have further developed since then: Differences between the audio technological environments of social climbers and people already stemming from a well-educated and better income background during the course of formative years form a good first theory candidate. We hope that it might be able to explain the strikingly higher adaptability to new audio technologies by the *Selective Traditionalist* who at the same time nevertheless exhibit a surprisingly 'narrow' audio repertoire.

Since Documentary Method is not very common in international media research methods discourse, we wanted to provide an illustrating example to give readers a basic idea of how we approach the qualitative micro-analysis in our study, in which way this methodological step complements the quantitative part and how it is finally compatible to our meta-theoretical assumptions. To arrive at final socio-genetic type explanations, we still have to include additional cases for further comparisons on other dimensions of experience (e. g. gender, migration) that might give rise to alternating or complementary explanations for the development of the media generation units identified.

4.   Conclusion and outlook

4.1. *Overall discussion of results in terms of audio media generations*

By combining Latent Class Analysis and Documentary Method in a mixed method approach, we arrived at a far more precise picture of central aspects of Mediatization of everyday music listening in Germany than we could get before on basis of single media usage data: Currently, there seem to exist six different *audio media generation units*. They are distributed overlapping across different birth cohorts in German society but still exhibit a form of historical succession, which allowed us to draw the narrative interpretation of audio media generation unit patterns presented in 2.3.3. Furthermore, the different units identified seem to stem, at least partly, from similar generational locations. Together they therefore constitute larger formations of *audio-media-generations-as-actuality*, from which we have identified at least one formation by the exemplary documentary analysis conducted above. It spans at least across the two younger 'traditionalist' classes C5 and C3 whose members both grew up in the times of analog audio that coined their respective formative years. Still the units differ in terms of social location which gives rives to their different modus operandi that comes into action when dealing with new audio media. Additional analyses that aim to arrive at further explanations of how and why these and

other audio media generation units historically came into being are currently in progress, by drawing on further cases from these and also members from other repertoire classes.[5]

All in all, the generational approach we have adopted promises to give holistic explanations to the complex patterns and types of audience fragmentation that we are confronted with nowadays: If above all complexity in media consumption, there can be found certain similarities and systematic changes within patterns across time and individuals, they might be understood as the outcome of a larger higher-order generational process which can be described in terms of 'demi regularities' (Danermark, Ekström, & Jakobsen, 2001). Therefore, the concept of media generation units promises to unveil underlying continuities within patterns of complex change that could help to form future middle-range theories in mediatization research.

4.2. Overall discussion of methodological approach

Apart from sharing many premises and promises, mediatization and media generation research suffer from the same two methodological problems when applying their meta-theoretical conceptions to their subject matter in the course of empirical work: The first is how to relate results from necessary and important micro-level analyses of life-world embedded media use to the macro and long term perspective of societal change without a regress to either 'technological absolutism' or 'demographic absolutism' – both of which have been rightfully criticized and disapproved of before (Vittadini et al., 2014). The second problem is related to actual interpretive micro analyses and the problem of how to discern communicative self-positioning in terms of 'doing generational identity' on the one hand from reconstruction of actual habitual practices of everyday media use related to generational belonging on the other (Corsten, 1999). The approach presented here has tried to address both problems.

We think it is especially reasonable to employ quantitative pattern recognition technologies to *discover* media generation units, since results from qualitative approaches trying the same will always suffer from a major limitation: While explanations derived are of cause generalizable, it is simply not feasible to make *structural quantitative generalizations* from a small, non-random and non-representative sample of informants. So any clues of the actual prevalence of the discovered social entities within society (in terms of mere size) or about the entities' *precise* relation to age cohorts ('generational location') as well as socio-demographics ('social location') will always be missing in such 'bottom up analyses'. Accordingly, researchers in empirical media generation research will often end up with trying to relate their results in a 'fuzzy' way of data triangulation with cohort- and socio-demographics-based statistics on media usage which to us seems unsatisfying. While surely not being without its own drawbacks, the alternative 'top-down strategy' to the discovery of meaningful media generation units advocated in this paper does not suffer from the namely problems. If the basic assumptions justified in Section 1 are correct, we may very well employ media repertoire analyses to perform inquiry on media generations on the macro level of society by help of quantitative methods. Moreover, we demonstrated that this kind

of approach may be complemented well by reconstructive 'qualitative' methodologies on the micro level.

4.3. Future endeavours in audio media unit research: latent transition analysis

We see the future of the methodological approach presented exemplarily here in a further extension to the longitudinal realm. After all, the explanation of historical emergence of media generation units is only *one* task of *four* qualitatively different forms of possible changes in societal media use that may be discerned within the framework of our generic media generation model: Apart from *type I change*, referring to the *historical emergence of media generation units*, we will in future also be interested in *type II change*, the possible *long-term decline of existing media generation units*. And in order to empirically separate the respective influences of generational milieux and actual life circumstances, it will be furthermore necessary to also conduct empirical checks for *type III change* in society media use, referring to *transitions in membership between generational units* that we assume to be explainable through changes in actual life circumstances. And finally, in order to subject the meta-theoretical assumption of relative inertia in individuals' repertoire patterns to an empirical check, too, we should additionally test for *type IV change* in media repertoires, denoting *slow metamorphoses regarding the empirical repertoire-structure* in terms of the constituting item response patterns.

While all these theoretically plausible types of media change were already implied in the meta-theoretical media generation model in chapter one (see **Figure 1**), so far, only type I, the historical emergence of media units could be examined empirically in the present paper due to epistemological limits of the cross-sectional data at hand. Therefore, we plan to employ latent transition analysis (LTA) on a longitudinal sample in future. LTA is an extended form of longitudinal LCA that allows hypothesis tests for different model constraints that embody the above mentioned other types of change (Collins & Lanza, 2010b). Insofar, employment of LTA promises a way to introduce 'hard empirical checks' for the suitability of the generational approach in terms of being able to explain long-term mediatization processes.

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Notes:

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[1] The research project 'Music and Media Survey' (in German: 'Survey Musik und Medien. Empirische Basisdaten und theoretische Modellierung der Mediatisierung alltäglichen Musikhörens in Deutschland') is funded by the German Research Foundation (DFG) under the reference number LE 3096/1-1 as part of the Priority Program 1505 'Mediatized Worlds" and operates within the Audio Communication Group of the Technische Universität Berlin, Germany.

[2] In order to also represent German households without a landline connection, 600 of the interviews were led via mobile connection and the according data were merged with the other dataset on basis of the 'dual frame approach' (Gabler & Ayhan, 2007)

[3] The order of repertoire classes C1 and C2 has been exchanged deliberately by the authors in figures 3 to 5 to allow for an easier visual comparison of class profiles.

[4] All informants interviewed received a monetary compensation for their partaking in the study and consented to their anonymized data being published scientifically. Regarding transcript extracts quoted here, all references to individual names, places or personal data have been anonymized extensively

[5] Additional figures and data analyses concerning German's audio media use in 2012 are provided by our project website at http://www.musikundmedien.org.