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Theoretical and Practical Considerations Concerning the Use of Larger Qualitative Samples for the Documentary Interpretation of Pictures

Computer-Assisted Image Assessment and the Iconic Operationalization of Tinder Profiles

1 Introduction

As the empirical branch of the praxeological sociology of knowledge, the documentary method (Bohnsack, 1999; Mannheim, 1982) aims to explicate the implicit and conjunctive knowledge that constitutes milieu-specific constructions of reality. The goal of this method is to identify and further explicate the dominant habitus within social spaces, as well as to understand the researched milieus themselves. The documentary picture interpretation (Bohnsack, 2008, 2011, 2020a) is a comparatively new branch of empirical research within the praxeological sociology of knowledge that combines the documentary method by Ralf Bohnsack (1999) and Karl Mannheim (1964, 1982), the iconological approach by Erwin Panofsky (1979), and the iconic by Max Imdahl (1996). It aims to explicate the theoretical and practice-guiding knowledge of social actors through the pictures they produce and authenticate. The present essay focuses chiefly on the documentary interpretation of pictures produced as artefacts of everyday life[1] as the central object of empirical research.

Although the documentary method is practically more concerned with the interpretation of a selected few cases, it is also designed to enable the generalization of its results for the investigated conjunctive spheres of experience

1 Artefacts of everyday life are used as antonyms of products that are originally created for research purposes (see also Bohnsack, 2011, p. 118).

(Bohnsack, 2007, 2011, pp. 21–23; Bohnsack et al., 2019). While every conceivable subject of interpretation will inevitably belong to various conjunctive spaces of experience (e.g., social class, age, gender, etc.) they fundamentally constitute singularities that do not allow generalizations by themselves. This problem concerning generalizability is partially accounted for by the methodological design of the documentary method itself. In a reverse approach, the documentary method attains certain levels of generalizability through the systematic utilization of empirical horizons of comparison (Bohnsack, 2018, p. 56) and the following generation of types. As such, the documentary method bases its generalizations on abstractions of its interpretations (Bohnsack et al., 2019, p. 21 ff.). While this type of generalization aims for conceptual rather than statistical representativity (Corbin & Strauss, 1990, p. 94; Wohlrab-Sahr & Przyborski, 2018, p. 94), the quality of the generalization still depends on the number of cases (Przyborski & Wohlrab-Sahr, 2014a, p. 282) and induces the need for a sufficient sample size.

This paper argues that an overly limited sample size that relies exclusively on purposive and theoretical case-by-case sampling (see also Wohlrab-Sahr & Przyborski, 2018, pp. 95–96) inhibits the true potential of the documentary method to conduct research on social spheres and to generate satisfactory generalizations. An exclusively continuous sampling throughout and for the *comparative analysis* (cf. Bohnsack, 2011, p. 21) locks the investigated cases into empirical proximities dictated by the function of a case to validate the interpretation of its predecessor. This will ultimately lead to restrictions concerning the potential scope of the findings and the validity of their subsequent generalizations. Therefore, investigating entire conjunctive spaces and their habitus requires broader perspectives in the form of larger qualitative samples that circumvent the aforementioned empirical proximities. Larger samples remain uncommon in both qualitative and reconstructive social research alike, as both traditionally aim for a thorough, in-depth understanding of the investigated constructions of reality. Given the resource-demanding nature of qualitative approaches, this means that larger samples represent a research-practical challenge. Limited sample sizes incentivize the assessment of case-specific habitus and their subsequent differentiation from other singular cases. By itself, this does not allow the sufficient assessment of conjunctive spheres, nor does it provide the necessary empirical material to abstract the identified types to a satisfying degree. There is untapped potential concerning the systematic utilization of larger qualitative samples to further support the generalizability of the findings, as well as to guide the case selection of the to-be-interpreted

material and thus the methodical control of the *situational determination* (Berger & Luckmann, 1967, p. 7) of the researcher.[2]

The goal of the present paper is to elaborate on the research-practical need for and benefit of larger qualitative samples for the documentary interpretation of pictures, while also proposing a practical approach to the utilization of such samples. In so doing, this paper introduces the *computer-assisted image assessment*, an experimental workflow that is actively developed as a solution for the research-practical needs of the project entitled *The Presentation of Attraction in Online Dating: A Documentary Interpretation of Tinder Profiles in Germany, South Korea, and Hong Kong*. Chapter 2 continues the theoretical elaboration of the introduction by discussing the requirements concerning the samples for documentary research. In so doing, it also provides further arguments for larger qualitative samples for the documentary interpretation of pictures. Chapter 3 introduces the aforementioned research project and the role of Tinder profiles in their particularity as the empirical research object in the practical context that necessitates the development of the herein-presented approach. Finally, Chapter 4 presents the computer-assisted image assessment to illustrate the practical handling of larger qualitative samples prior to and in preparation for the documentary interpretation of pictures.

2 Larger Qualitative Samples for the Documentary Interpretation of Pictures

2.1 Reasons to Employ Larger Qualitative Samples

The documentary method traditionally aims to facilitate an in-depth understanding of the investigated habitus and the associated construction of social reality. It goes beyond the traditional scope of qualitative methodologies and aims to facilitate generalizations concerning the investigated conjunctive spaces of experience (Bohnsack, 2011, pp. 21–23; Bohnsack & Nentwig-Gesemann, 2018). The documentary method implements this generalization (that is, praxeological typification) of its interpretations through abstraction and the subsequent identification of meaning-genetic, as well as socio-genetic (Bohnsack, 2007; Bohnsack et al., 2019) or relational types (Nohl, 2012). Discussing the goal of the documentary method to generalize its findings necessitates a closer examination of the sample as the empirical inception point of every research design.

2 Also referred to as *the social connectedness of knowledge and thinking* (Bohnsack, 2020b, p. 416).

According to Przyborski and Wohlrab-Sahr (2018, pp. 95–96), the sampling for the documentary method needs to be conducted as systematic, theory-driven data collection (that is, theoretical sampling). Theoretical sampling supports the documentary method in two major ways. First, it frames the empirical material within the context of the research question and subsequentially supports the theoretical framing of the orientation problem (see also Glaser & Strauss, 1998, para. 53). Second, an ongoing theoretical sampling for the sake of constant comparison in the spirit of the grounded theory (Glaser & Stauss, 1967) and abductive reasoning (Peirce, 1991) provides the necessary empirical horizons of comparison for the validation and methodical control of the identified types (Bohnsack, 2008, paras. 62–63; Bohnsack et al., 2019, p. 31). Theoretical sampling is essential for the research of social milieus and social phenomena within the latter, as the documentary method requires a theoretical framing of the functional context that connects the to-be-sampled cases. The *functional context* refers to the unifying purpose of all sampled pictures. Pictures, like all other artefacts of everyday life, constitute interpretively open and thus highly *polysemic* condensations of knowledge (Bohnsack, 2011, pp. 45–46; Przyborski & Wohlrab-Sahr, 2014b, pp. 329–330) that need to be framed through their *functional context*[3] (for example, their usage as a communicative gesture in social interaction). It is recommended to approach the sampling via the functional context when researching pictures as *artefacts of everyday life* and therefore as social acts in their production and their usage. The theoretical sampling ensures that contrasting cases that are relevant to the research question are provided. However, as the fundamental acquisition of the to-be interpreted data, the theoretical sampling must primarily focus on providing cases that are contrasting in their social origin but not (yet) in their performative differentiation. The latter will happen through the case selection for the comparative analysis and, therefore, after the *sampling*.[4] The next consideration is how many cases to sample. Case studies constitute a common approach in previous applications of the documentary method. These designs start with one central case and extend its sample systematically by adding additional cases as empirical horizons of comparison. Such case-centred research designs conduct their sampling continuously and on-demand, whereby the additional cases serve as contrasts to empirically validate the central case of interpretation. As such, ongoing sampling is an integral part of the comparative analysis and the documentary method.

3 *Functional context* denotes a theoretically conceived orientation problem for the empirical material that is to be interpreted.

4 *Sampling* refers strictly to the overall data collection; *case selection* denotes the identification of particular cases for interpretation and comparison.

Theoretical samples that provide empirical verifications of mind-experimental horizons of comparisons (Bohnsack & Nentwig-Gesemann, 2018, p. 238) on an on-demand basis are inherently biased towards case-centred research, as the sampling inevitably revolves around an initial case that needs to be compared. Consequently, an ongoing theoretical sampling throughout and limited to the comparative analysis is suitable for research that aims to explicate how a particular case fits into *the social* (that is, to interpret a particular case relative to other cases) but is less suitable in researching *the social* from a broader perspective (that is, to develop generalizations for conjunctive spaces that relate cases). The aforementioned type of sampling ends when the respective interpretations have been satisfactorily validated through the comparisons with positive and negative horizons of comparisons. This means that the extent to which additional material is sampled remains within the functional proximity of the to-be-interpreted cases that prompt the inclusion of additional cases in the first place; in other words, it is driven by the comparative analysis rather than the goal to generalize (see also Bohnsack, 2008, p. 63, 2011, p. 21; Bohnsack et al., 2019, p. 41). This proximity imposes a limitation on the quality of the generalization, as the inclusion of additional cases remains based on their function to validate interpretations of cases and not on the discovery and exploration of additional orientations within a conjunctive space. Consequently, the aforementioned sampling prevents systematic insight into possible orientations that constitute the very foundation of any generalization and instead prioritizes the validation of individual cases (that is, their interpretations). Furthermore, there is the lingering risk that the situational determination of the researcher(s) still poses inherent limitations to the extent of the theoretical sample, turning the latter into a form of an empirical echo chamber. This can happen if the cases for the comparative analysis are collected as empirical verifications of what had until then been the thought-experimental horizons of comparison of the researcher. The latter type of empirical cases shall not be ignored or downplayed in their relevance. However, the cases that are to be compared are collected horizontally, so the focus of the research shifts from a central case toward social milieus.

Therefore, it is suggested to avoid only extending the sample dynamically throughout the comparative analysis by adding purposive horizons of comparisons, and instead to start the research with a theoretically clustered sample that is collected independently from the selective preferences of the researcher(s). The sample should be collected as a clustered random sample at the very beginning of the empirical pipeline and within the theoretical confines of the study before the actual case selection for interpretation. It is not important that the sample is *truly random*, but rather that the cases cover a large spectrum that is not defined by any potential value for the comparative analysis but to have an unbiased set of data within the theoretical confines of the research interest. Such larger qualitative samples serve the purpose of providing empirical

horizons of comparisons that are untouched by the inherent selectivity of the researcher(s), while also allowing various orientations to emerge in each cluster.[5]

2.2 Considering the Sample Range and Sample Density

To introduce a broader perspective to the sampling process, it is important to formally differentiate between what should be understood as the sample range and the sample density. The *sample range* refers to the overall number of cases within the sample, while the *sample density* denotes the amount of interpretable material per case (that is, pictures and eventually other types of material for the sake of triangulation). The previously discussed case-centred research design typically employs low-range samples, as the expansion of the sample is motivated by the necessity to provide empirical horizons of comparison that support the interpretation of a central case.

The theoretical acceptance of low-range samples and the resulting bias toward sample density (for the sake of triangulation and the validation of singular interpretations), as well as its attempt to generalize, is justified partially within the methodological discourse of the documentary method. The argument is that the homologous pattern from which the habitus can be reconstructed and subsequentially abstracted will be inevitably found in every artefact (pictures, texts, etc.) of the same producers (Bohnsack, 2008, para. 22, 2011, pp. 77, 143). This line of thought is reasonable when it comes to the consideration of how much empirical material is necessary in order to identify the habitus of a single case. It also underlines how the sample density relates to the degree of clarity to which the habitus of individual cases can be interpreted. More material per case provides more case internal horizons of comparisons that explicate a given habitus. However, it does not address the need to systematically expand the sample range (by involving more cases) in order to identify more orientations within a conjunctive space, or rather the cluster as its theoretical approximation.

As theoretical operationalizations, all clusters are merely abstract approximations that can hardly reflect the true intersectionality of any lived reality. Therefore, it is necessary to assume that there is always a multiplicity of potential orientations (habitus) to be identified in these clusters. This will eventually hint at more subtle conjunctive spheres of experience that have not yet been covered by theoretically conceived categories as represented by the

5 The term *cluster* is employed as an analytical category for the investigated conjunctive spaces of experience and is informed by the overarching research interest of a given study.

clusters (cf. Nohl, 2012, para. 171).6 Just as the habitus of a single case (informant) echoes through all of its elements (see also Bohnsack, 2011, p. 77), the typical habitus of particular conjunctive spaces of interest will document themselves in equally homologous patterns across all the associated cases. Therefore, researching social milieus as conjunctive spaces inevitably requires samples that allow various orientations to emerge; or, more metaphorically speaking, the samples need a sufficient range to breathe. Likewise, the samples must a provide sufficient amount of cases that enable the empirical verification of the identified orientations and the associated creation of meaning-genetic and socio-genetic types through comparative analysis (Bohnsack, 2007; Bohnsack et al., 2019). It is crucial that these cases as horizons of comparison originate from the same initial sample and not exclusively from purposive-sampled validations of the researcher's interpretative angle.

It must be stressed that an increased density will support the identification of a singular producer's habitus. However, the latter must be empirically validated by comparative analysis with other cases, which requires an increased *sampling range*. The relevance of the sampling range for the validity of the generalization can be further illustrated by using the example of the high-density, low-range sample utilized by Vinícius Liebel, for which he sampled 4462 caricatures by comic artist Philipp Rupprecht published in the newspaper *Der Stürmer* (Liebel, 2010, p. 108). Such a case-centred design is useful and recommended when a research project purposively investigates the habitus of specific actors, and like Liebel, the adjustment of these actors' habitus to the external changes in society; that is, the different phases of German National Socialism. However, the empirical focus on one central producer makes it impossible to validly generalize the findings of such a study to an entire conjunctive space (namely, Germany in 1923–1945) – provided that this is the aim of the study in question. A sufficient generalization for a social milieu requires an increased sample range within the same functional context; that is, newspaper caricatures that address the tension between Germans and Jews (Liebel, 2010, p. 203). Employing a low-range sample diminishes the potential to explore the associated clusters at large and therefore limits the capacity to research *the social through the case*, which is what Mannheim identified as the general objective of sociology (Mannheim, 1982, p. 80), and instead focuses on *the social in the case*. This assessment shall not dismiss or invalidate research that focuses on the *social in the case*, but it is intended to raise awareness to not confuse both aforementioned objectives when designing an implementation of the documentary picture interpretation.

6 The multiplicity of the potential orientations to emerge in the clusters also supports the stance that the to be identified orientations are considered to be specific for particular convergencies of conjunctive spaces of experience (Nohl, 2012, pp. 167–168).

Just like a certain case density is required to sufficiently identify and verify an orientation through *case-internal comparison*, an adequate range is crucial to verify such identified orientations within the investigated clusters. The availability of a sufficient amount of cases for comparison (that is, empirical horizons of comparison) (Bohnsack, 2008, paras. 62–63, 2011, pp. 46–47) is a critical aspect of any documentary interpretation, as it is the comparison and subsequent distinction from other possible orientations that ultimately constitutes the validity of the findings. It is essential to find a balanced mix between sample range and sample density, as the sample must enable the readability of the habitus on the case level but also facilitate the exploration of the spectrum of this habitus and the associated performative realizations. Therefore, it is strongly recommended to not sample from the centre outwards; that is, starting from a central case and further extending the sample by adding additional cases based on their value as positive or negative horizons of comparisons. Instead, the sample range should be as wide as possible but remain within the theoretical frame that is imposed to be the guiding hypothesis of the research question in form of the clusters.

2.3 Problems of Applying High-Range Samples

The utilization of high-range samples is unintuitive for documentary interpretation as it is for qualitative research methods at large. Just as the generalization of its findings is a unique feature of the documentary method, it also requires equally unorthodox approaches concerning its sampling. However, there are various points of concern that invoke the field's typical reluctance to employ larger qualitative samples. First, there is the aforementioned overreliance on the on-demand application of theoretical step-by-step sampling. It needs to be clear from the very beginning whether the project ultimately endeavours to research the *social in the case*, or the *social through the case* in order to plan how and on what scale the data need to be collected. This point was already addressed in the previous chapter. Second, a larger sample imposes certain methodological obstacles on the application of the documentary method. After all, the documentary method is still a qualitative approach that aims to facilitate an equally qualitative in-depth understanding of social milieus and social reality within the latter. It is pivotal to gain access to the sampled data in a way (1) that supplements the case selection for the interpretation and (2) enables the utilization of the sample for the comparative analysis. When an application of the documentary method aims to explicate the habitus of one particular actor, the case selection will be chiefly concerned with the identification of the best picture that represents the habitus of the respective case. As previously discussed, the documentary method assumes that the habitus of a given case documents itself in varying intensity throughout all of its elements (Bohnsack,

2011, p. 77). Therefore, it is necessary to identify the orientations within the sample followed by the selection of particularly representative cases through the principle of focus.

The application of the principle of focus to the case selection introduces, at least superficially, a research-practical paradox. Its application inevitably presupposes the identification of the habitus, as the principle of focus serves to identify and select exceptionally suitable cases for the documentary interpretation that are signified by a particular illustrative quality. This shall mean that the habitus to be interpreted is already known, or at least assumed, before the formal interpretation, which is supposed to explicate the said habitus in the first place. This paradox can be partially solved by recalling that the identification of the habitus is, at first, an intuitive process (which is subject to the situational determination of the researcher) and only gets methodically controlled through the actual documentary interpretation and the comparative analysis (Bohnsack, 2008, paras. 62–63, 2011, pp. 21, 46). Accounting for the friction between conjunctive understanding and interpretation (Bohnsack, 2011, p. 18), it remains essential to consider all of these intuitive identifications as tentative and temporary until they are verified through the application of the documentary method. This intuitive identification of the habitus and the subsequentially application of the principle of focus can be conducted comparatively easily for the interpretation of case studies and low-range samples. Such identifications become proportionally more demanding when introducing larger qualitative samples that cover hundreds or thousands of cases that cover numerous orientations due to the inevitable intersectionality of lived realities of the informants. Therefore, it is necessary to assess the spectrum of orientations within the sample before selecting representative cases for these orientations. The initial sample was collected based on the research questions and the research-relevant clusters. It can be expected that these theoretically conceived clusters host a multitude of different orientations, only a few of which are truly exclusive to said clusters. However, even shared orientations can vary in their iconic expression, which means that the same orientation (as in meaning-genetic types) can exist within two clusters but with cluster-specific iconic expressions. At this point, it is important to recall how the comparison is to be framed. For pictures as artefacts of everyday life, the functional context constitutes the orientation problem and the first axis of comparison. The meaning-genetic differentiations of this orientation problem constitute the second axis of comparison for the iconic expressions.

Such complexity further amplifies a research-practical obstacle of the documentary method: it is highly detailed and very time-consuming, which is why the selection of representative cases is crucial for both the formal interpretation as well as the comparative analysis. Research-practical problems that are inevitable when dealing with larger samples make such research strategies unattractive but not less relevant. The most apparent problem for the documentary

method in utilizing larger sample ranges arises from the inherent incomprehensible of such visual data, and the resulting obstacles for the identification of orientations, the case selection for the documentary interpretation, as well as the utilization of the images for the comparative analysis. Consequently, the methodological discourse of the documentary method must explore new ways of systematically assessing large-range samples in preparation for the documentary interpretation of pictures.

3 Background of the Research Project

3.1 Background and Theory

The abovementioned theoretical discourse was formulated during the design phase of the research project entitled *The Presentation of Attraction in Online Dating: A Documentary Interpretation of Tinder Profiles in Germany, South Korea, and Hong Kong.* The goal of the project is to understand how subjects reproduce themselves through aesthetic image practices of everyday life within the functional context of Tinder (as image-based online dating) and the consequential anticipation of attraction. In doing so, this project implements a comparative analysis of the iconic image practices of Tinder users in Berlin (Germany), Hong Kong (HKSAR), and Seoul (South Korea), with particular interest in the differences concerning the habitus between these locations, as well as the gender and the sexual preferences of the informants. The intercultural comparison of this study is based on the guiding hypothesis that socio-cultural influences will inevitably shape the atheoretical understanding and subsequent performative realization of the anticipation of attraction within cultural groups as conjunctive spaces of experience.

The theoretical key concept developed for this project is the anticipation of attraction, which is based on the hypothesis that social actors anticipate appealing to generalized others through their impression management. Ritualized exchanges of asynchronous, mediated impression management, such as online dating or job applications, do not enable a dynamic performance in the traditional Goffmanian sense (Goffman, 1959, p. 17 ff.) or allow a known other to be addressed personally. When the unknown, generalized others remain abstract, it is necessary to appeal to the future employer as an abstract entity in the same way that it is necessary to appeal to an unknown set of potential matches in online dating. Therefore, it is inevitable that individuals anticipate attracting an unknown, generalized other through their performance in which they fill the perspective of their obscure audience with a projection of their own ideal understanding of what ought to be attractive or appealing. To attract means to invoke a positive disposition to the performer within the given functional context and should therefore not be confused with already very narrow

romantic or sexual attraction. Investigating the anticipation of attraction from a praxeological lens requires an understanding of how this anticipation of attraction documents itself in social conduct (that is, image practices). This context-specific habitus of attraction documented in Tinder profiles shall be referred to as modes of attraction, which correspond to the meaning-genetic types within the methodological framework of the documentary method (see also Bohnsack, 2011, paras. 21–23, 2017, p. 213 ff.). Also, the anticipation of attraction within the functional context of Tinder fulfils the analytical problem of the orientation problem (see also Bohnsack, 2011, para. 22, 2014, p. 41).

3.2 Introduction to Tinder Profiles as Empirical Objects

Tinder constitutes the functional context in which the anticipation of attraction is performatively invoked through aesthetic image practices. The service has over 450,000,000 unique downloads and 6,900,000 active subscriptions (Match Group, 2021), making it one of the most widespread online dating services. Tinder serves its users as a "social discovery platform" (LeFebvre, 2018, p. 1207) that fulfils various needs, such as establishing social contacts and sexual encounters, social validation, or distraction (Timmermans & De Caluwé, 2017, pp. 27, 37). Tinder's popularity is partly due to its gamified design and its proximity-based user experience, which facilitates matches based on the relative GPS locations of the users. Tinder operates in three phases: (1) the profile setup phase, (2) the swipe phase, (3) and the chat phase. The swipe phase, which is the defining and most iconic feature of Tinder, can be understood as follows:

> "Tinder uses the GPS feature of the user's mobile phone to show nearby eligible partners' profiles. When users are interested in someone, they anonymously swipe to the right on their phone; when they are not interested in someone, they swipe to the left. When two people swipe right for each other, they are considered matched and are now able to communicate with one another." (Weiser et al., 2018, p. 29)

The live interaction between users in the chat phase and a potential in-person meeting is locked behind the successful outcome of the swipe phase, which depends on the Tinder profiles as curated repositories of mediated impression management.

The functional design of Tinder demands that the profiles are populated with between one and nine pictures, the age of the users, and their gender. Tinder provides three gender options – male, female, and "more" – with the latter being an umbrella category that is further divided into 37 additional options. Furthermore, Tinder users can provide optional information in form of 500-character long texts, as well as general information like their school or work

affiliation. Such data need to be considered for the sake of triangulation and contribute accordingly to the sample density, but it will be ignored in this paper for the sake of conceptual focus. In addition to the aforementioned categories of self-description, Tinder users have to configure their *discovery settings* (that is, specify what type of users will show up during the swipe phase) in three categories: (1) the age range (18–99), the relative distance to their GPS location (1–161 kilometres), and the desired gender of their matches (that is, the target audience of their profiles). Users can choose to match with either males, females, or "everyone". Configuring the own matching preference as "everyone" is the only way to match with users who classified themselves within one of the previously mentioned 37 "other" categories.

Tinder users serve as the authorizing and authenticating instances of their profiles while also, possibly, taking the role of depicted and depicting producers of the profile pictures (see also Bohnsack, 2020a, p. 400). This must not necessarily be the case for all pictures, as users are free to upload any picture, whether it is of animals, vistas, memes, or anything they consider relevant. The decisive point is that Tinder profiles constitute, in their selectivity, a condensation of stylistic preference of their respective users (see also Bohnsack, 2011, p. 76) within a distinctive functional context of Tinder; that is, to earn a match in the swipe phase through the means of impression management.

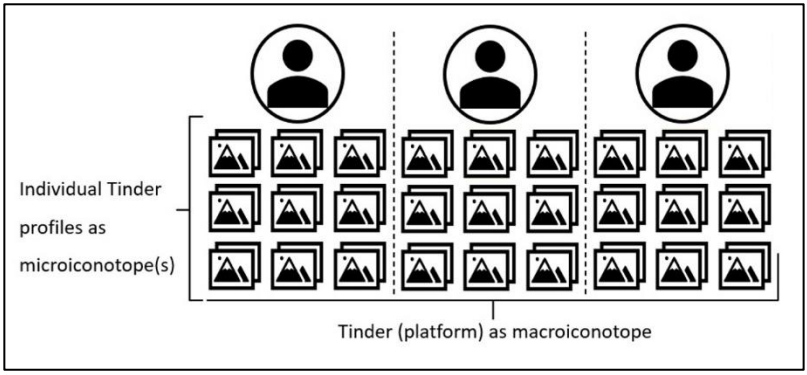

Figure 3.1: Tinder (profiles) as iconotope(s) (© the author)

Figur 3.1 illustrates the structural composition of Tinder as both a digital exhibition space and as a set of *iconotopes* (see also Dörner, 2011). Tinder as a platform constitutes a macroiconotope, or *image space* (see also Endreß, 2017), that contextualizes all profiles and their elements (pictures and other meta-information) within its functional context of online dating in which they are inevitably placed by the users. Consequently, the elements of the profiles are framed as *communicative gestures of asynchronous impression*

management. Singular Tinder profiles contextualize a given set of images as *parts of a sequentially arranged instance of impression management* and as sequences of simultaneities (see also Bohnsack, 2011, paras. 47, 55, 2020a, p. 398), which means that profiles document the respective habitus of the users through their unique compositions and not only through singular pictures alone. On a strictly iconic level, Tinder profiles can also be understood as configurations (of pictures) of configurations (of visual elements within the pictures). Within the macroiconotope of Tinder, profiles and their elements reciprocally reference each other in the shared discursive space they occupy, with profiles further condensing unique forms of meaning that only emerge through the mutual contextualization of and through the profiles. The habitus of individual users documents itself on the profile level, which must subsequently be reconstructed as the homologous pattern that manifests itself to varying degrees in and across all corresponding profile pictures (cf. Bohnsack, 2008, para. 22, 2011, p. 77).

Given that the present study aims to understand the habitus of anticipated attraction and its distribution concerning the investigated clusters, it is necessary to employ a sample that is broad enough to reflect the variability of the possible orientations within the relevant clusters. This can only be facilitated by increasing the sampling range per cluster. Practically, this need for a larger sampling range resulted in an initial sample of 3000 profiles (11,780 pictures), that were collected in 12 theoretically conceived clusters. These clusters were sampled equally in Berlin, Hong Kong, and Seoul (1000 profiles each), and were further separated into gendered groups of male and female (500 each) and according to the sexual preferences of the users (250 each). The dichotomous separation of gender and sexuality is based on the aforementioned profile structure of Tinder. By removing all users who were not located within a 40 km radius of the sampling locations (Berlin, Hong Kong, and Seoul), the sample was adjusted to 2694 profiles and 10,261 pictures.

	Full Sample											
	2694							10261				
Location	Berlin				Seoul				Hong Kong			
	888			3680	823			2577	983			4004
Gender	Male		Female		Male		Female		Male		Female	
	439	1553	449	2127	443	1269	380	1308	483	2107	500	1897
Audience	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	217 617	222 936	225 1011	224 1116	212 418	231 851	167 636	213 672	239 1035	244 1072	252 988	248 909
Cluster ID	1	2	3	4	5	6	7	8	9	10	11	12

Figure 3.2: Sample overview (© the author)

Figure 3.2 illustrates the exact distribution of profiles (green) and pictures (orange) per cluster. The theoretical segmentation of the sample in these 12 clusters is based on the aforementioned hypothesis that the performative anticipation of attraction through image practices differs according to the conjunctive

space of experience the users allocate in. Therefore, Berlin, Hong Kong, and Seoul constitute contrasting cases on the geo-social level, while gender and sexual orientation, due to the profile design on Tinder, constitute reliable categories of self-categorization.

4 Computer-Assisted Image Assessment

Named *computer-assisted image assessment*, the approach described below set out to provide a systematic yet explorative means to assess visual data prior to but in preparation for the *established workflow of the documentary picture interpretation* (Bohnsack, 2008, para. 14). There is special focus on the analysis of the planimetric composition and the scenic choreography in the context of the iconic interpretation. The planimetric composition refers to the composition of a picture as a two-dimensional space (Bohnsack, 2008, paras. 34, 41), while the scenic choreography describes the scenic constellation and the relationship of the depicted actors within a picture (Bohnsack, 2011, p. 39). Both the assessment of the planimetric composition and the scenic choreography, along with the projection of perspective,[7] constitute the reconstruction of the formal composition of the picture (see generally Imdahl, 1996), and are therefore part of the reflective interpretation of the documentary picture interpretation (Bohnsack, 2011, p. 20).

The computer-assisted image assessment complements the documentary interpretation of pictures by (1) operationalizing the visual data to enable a holistic description of the sample, (2) enabling easier navigation for the comparative analysis, and (3) creating a starting point for supplementary statistical evaluation of the sample to support the case selection of the documentary interpretation. The computer-assisted image assessment is separated into two larger segments: the operationalization and the preparation of the data for the documentary interpretation. The two computer vision methods introduced in Chapter 4.1 are chiefly described concerning their analytical use. For more information on installing and using the introduced codes, refer to the referenced manuals and the complementary material at the end of the respective chapters. The computer-assisted image assessment will require the following software packages:

- PyCharm: https://www.jetbrains.com/pycharm/
- Anaconda: https://www.anaconda.com/products/distribution#Downloads
- R: https://cran.r-project.org/bin/windows/base/
- RStudio: https://www.rstudio.com/

7 It was not possible to develop as a satisfactory approach that would have enabled the assessment of the projection of perspective, which is why the latter is not covered by this approach.

4.1 Operationalization

4.1.1 Actor Recognition and Shot Type Identification

Actor recognition and *shot type identification* single out all photographs with people in them and categorize the images according to the shot type. Based on the inherent nature of the sample, this compound process provides the necessary preparational work to identify portraits[8] as the most prevailing type of pictures within the sample and classifies them according to the dominance of the actor within the planimetric space. Based on its application to the documentary video interpretation (Bohnsack, 2011, pp. 157, 247), the shot type identification of the portraits provides a broad understanding of how much of the planimetric space (see also Bohnsack, 2008, para. 34) is occupied by the producer and thus already provides supporting data for the analysis of the planimetric composition. The shot type identification utilizes the following common output categories: (1) extreme close-up, (2) close-up, (3) medium close-up, (4) medium shot, (5) medium long shot, (6) long shot, (7) extreme long shot, and (8) no actor (Cherif et al., 2007, pp. 1–2). The actor recognition and shot type identification are realized simultaneously via a Python algorithm. The latter is realized as a slightly modified version of the PyTorch implementation of the DSFD-Pytorch-Inference (Li et al., 2019) and RetinaFace (Deng et al., 2019) by Håkon Hukkelås (2019), combined with the algorithm for shot type identification provided by Cherif et al. (2007). The code detects all human faces in a given picture and assigns them coordinates within the two-dimensional space of the image. The shot type is calculated based on the identified face height, the image dimensions, and the relative position of the face within the frame (Cherif et al., 2007, p. 3), and subsequentially categorized according to the previously listed shot types. Pictures that do not contain any faces are coded as "no actor" images. As this code is not able to detect actors with hidden faces (such as those that are turned away from the camera or cropped out), it is recommended to manually check the "no actor" pictures for false positives. However, the image clustering in the next module is also able to identify these false positives. It is therefore recommended to wait for the manual check. The results of the analysis are provided as CSV files (functionally similar to Excel files) that be further processed by any spreadsheet software.

8 Portrait denotes all pictures with human actors as sujet and without implying any other iconic specification.

Figure 4.1: Visual representation of the actor recognition and shot type identification (anonymized, © the author)

Figure 4.1 illustrates the otherwise abstract procedure of the actor recognition and shot type identification. The code identifies the dimension of the face and passes them to a modified version of the algorithm suggested by Cherif et al. (Cherif et al., 2007). The identified shot type is a medium long shot (MLS).

Resources

- https://github.com/KamToAzr/Actor-Recognition-and-Shot-Type-Identification

4.1.2 Image Clustering via PixPlot

Machine-learning-based image clustering as the centrepiece of the operationalization phase enables the exploration of the iconic range of the sample by grouping images based on their visual similarity. It allows the identification of comparatively objective visual clusters and further enables the compensation of the perceptional bias of the researcher(s) concerning the visual trends within the sample. Image clustering provides pivotal information concerning the scenic composition by identifying dominant combinations of objects, object-background variations, or other visual themes.

The image clustering utilizes *PixPlot* (YaleDHLab & Duhaime, 2018), an open-source visualization software that employs the *Uniform Manifold Approximation and Projection* (UMAP) algorithm (McInnes et al., 2018). Despite being developed for visualization, PixPlot holds a distinctive potential as an explorative coding tool that supports the understanding of large visual samples. PixPlot "[…] uses convolutional neural nets to reduce the images to 2048

dimensions and then uses UMAP to present them in a 2-dimensional map […]. This process results in similar photos ending up in similar regions of the map"[9](McInnes, 2018). This procedure makes it possible to identify visually similar images without relying on the literal comparison of pixel formations or fixed output categories. The pictures are clustered solely on their inherent, image-semantic similarities. Not working with fixed output categories allows greater flexibility concerning the clustering, notwithstanding that the researcher remains irreplaceable for the identification and naming of the resulting clusters. The comparative, category-free clustering also means that the accuracy of PixPlot is highly reliant on the size of the sample, as the outcome of the clustering is proportionally more detailed with increased sample size.

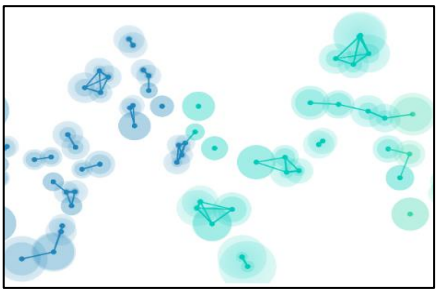

Figure 4.2: Schematic depiction of UMAP clusters (© Coenen & Pearce, n.d., figure 3)

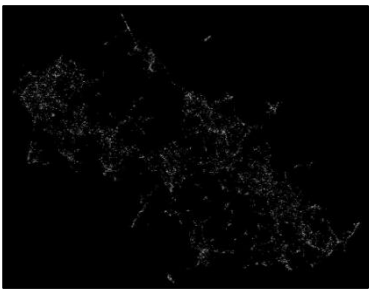

Figure 4.3: Exemplary PixPlot map (© the author)

Figure 4.2 provides a schematic depiction of the UMAP output on which PixPlots bases its visualization. Each dot represents one picture, with several dots being clustered "[…] based on the distance to each point's *n*th nearest neighbour [neighbours in terms of relative similarity]" (Coenen & Pearce, n.d.).

Figure 4.3 shows a for the project generated PixPlot map that replaces the abstract outputs of UMAP with the actual pictures of the sample. This map is freely zoomable and enables the manual inspection of the output.

9 *Map* refers to the visual output of PixPlot, as it projects the entire sample onto a two-dimensional space that can be read similar to geographical maps.

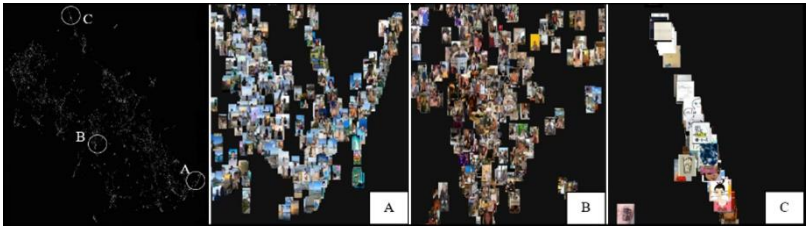

Figure 4.4: Visual clusters as they emerge in the visual PixPlot output (© the author)

Figure 4.4 illustrates the heuristic identification of various visual themes in the PixPlot map. Spheric or "cloudy" formations represent homogenous clusters, for example, (A) with a beach/marine theme, (B) with a dining theme, or (C) with an abstract/drawing/text theme. The elongated shapes/ tendrils within the spherical clusters represent variations of the theme. The tendril in Cluster (C) is in particular elongated due to the high variation within the cluster (that is, from drawings at the bottom to pure text at the top). In contrast, the tendrils in Cluster (A) tend to stack and are more numerous, as they represent variations in shot type, gender, and how revealing the beachwear of the producers is. It is important to stress that PixPlot does not identify these themes by itself but instead groups pictures based on their visual similarity. The researcher remains responsible to identify and name what PixPlot clusters. It is proposed to start by identifying the common denominator of the spherical clusters before coding the elongated subcluster concerning their discriminating feature. The clusters can be further explored by re-applying PixPlot to the clustered data, which will normalize their theme as the common denominator and thus enables the identification of additional subclusters.

PixPlot allows the free grouping, selection, and coding of the identified clusters directly through a graphical user interface. The researcher can select the identified clusters with a conventional lasso tool just as one would select multiple icons on the desktop. These selections can be exported as CSV files that contain the filenames of the selected pictures – effectively allowing the free coding of the clusters. The coded output of the image clustering can then simply be merged with the output of the actor recognition and shot type identification, as well as other metadata.

Objects			Environment
Animal	**Outfit**	**Consumables**	bar/restaurant
cat	mask	bottle	changing room
dog	nude body	cup	elevator
misc. animals	shades	food	forest/park
Backdrop	suit	glass/drinks	gym
architecture	uniform/cosplay	tobacco	marine
venue	**Vehicle**	wine glass	mountains
vista	bike	**Tool**	pool
Shot Type	boat	camera	private
extreme close up	car	computer	sports ground
close up	plane	flowers	toilet
medium close up	skate and surfboard	music equipment	urban
medium shot		toy	vehicle interior
medium long shot	**Sujet**		**Stylisation**
long shot	annotated images	mult. producers	mirror selfie
extreme long shot	books	photographs	monochromatic
no actor	car	producer	portrait taken at a dining table
Anonymization	cat	screenshots	selfie
covered by phone	dog	tatoo	shadow silhouette
cropped out	drawings	text	striking a pose
pixelation	flowers	venue	strong, colorful light
sticker	food and drinks	vista	
turn away	misc. animals	visual noise	

Figure 4.5: Coding table showcasing the results of the image clustering (© the author)

Figure 4.5 illustrates the codes that emerged through the PixPlot image clustering of the Tinder sample. Image attributes (cells) are coded heuristically through-out the reading of the PixPlot map (except for the previously identified shot types and pictures showing people) and thus represent the identified clusters. The attribute categories (column names) are constructed via axial coding and subsequent grouping of the image attributes.

Resources

- UMAP: https://github.com/lmcinnes/umap
- PixPlot: https://github.com/YaleDHLab/pix-plot
- PixPlot installation and coding guide:
- https://github.com/KamToAzr/Guide_PixPlot

4.2 *Data Processing and Preparation for the Documentary Interpretation*

4.2.1 Database and Heuristic Coding

As the next step of the computer-assisted image assessment, the database creates a visual association of the output of the operationalization phase with the sampled pictures and the other meta information of the informants. This step utilizes a Hyper SQL database and is implemented via LibreOffice Base. Such a presentation of the data allows the evaluation of the images and their attributes within the context of the respective profiles and enables further cross-profile comparison. This includes the ability to dynamically search and display profiles and their pictures based on their coded attribute, which also permits further manual coding where it becomes necessary, for example, to correct false positives, as discussed in Chapter 4.1.1.

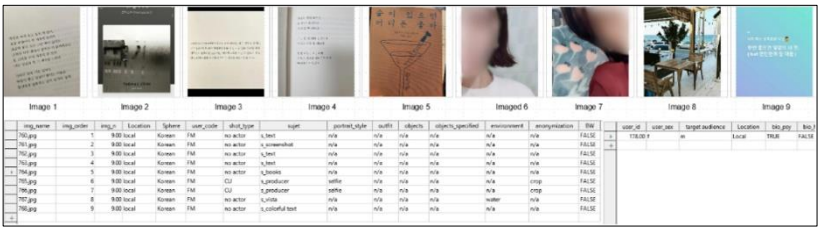

Figure 4.6: Database form as coding interface (anonymized, compositional work, © the author)

Figure 4.6 illustrates the database interface realized as a customized form that allows simple SQL queries to filter for particular attribute compositions within and across profiles. The profile in Figure 4.6 was returned after filtering for the sujet "books" (also see Figure 4.5). This tool enables easy comparison of visually similar pictures as well as the profiles in which they appear, further enabling a closer comparison of the documented modi operandi and their iconic representations. The arrangement of the interface itself is designed to emulate the sequentiality of Tinder, while also allowing a direct comparison of the images in order to grasp the iconic totality of the profile space as a microiconotope.

Following the setup of the database, the data needs to be further processed to support the case selection. The latter is traditionally conducted by applying the principle of focus (see Chapter 2.3), which requires the analysis of the data in light of the research question and its driving analytical category (that is, the modes of attraction). While the initial unsorted sample made the application of

the principle of focus difficult, the newfound insight into the data allows for a significantly more systematic approach, starting with the heuristic coding of the profiles. This means that every profile needs to be coded heuristically concerning the documented mode of attraction. Based on the discussion of the research-practical paradox of the principle of focus in Chapter 2.3, the heuristic coding (that is, identified orientations) should be considered only tentative until the identified habitus are validated through the formal application of the documentary interpretation.

Figure 4.7: Illustration of the heuristic coding of modes of attraction (anonymized, compositional work, © the author)

Figure 4.7 illustrates how profiles are coded heuristically concerning their documented modes of attraction. Profiles (A) and (B) both document habitus that emphasizes the social capital of the producer, while Profiles (B) and (C) document habitus of self-aestheticization. The chosen preliminary codes for these three profiles are (A) self-marginalization in the social, (B) self-aestheticization and social validation, as well as (C) consume-orientated self-aestheticization. This example also illustrates certain recurring iconic themes for these orientations and their overlapping. In order to maintain constancy between each coding session, it is proposed to conduct the heuristic coding per cluster (see Chapter 3.2) and streamline the assigned codes between each coding turn. This also includes a code internal comparison to further differentiate the assigned codes where it is deemed necessary. In a second step, the identified modes of attraction are compared concerning their iconic themes (that is, differences and similarities between different orientations), as well as differences and similarities between the same orientations but between different clusters.

So far, the computer-assisted image assessment has enabled the coding of the pictures and the heuristic coding of the profiles as independent processes, as the coding of the profiles does not functionally rely on the pictures themselves. However, having each picture as well as its associated profile coded

with the tentative modes of attraction makes it possible to identify patterns among the modes of attraction, the clusters, and the image attributes.

4.2.2 Case Selection and Configural Frequency Analysis

The case selection based on the computer-assisted image assessment is still in an experimental state, so the following concept should be taken more as an idea that merits further investigation beyond the scope presented. As previously stressed, it is recommended to select the cases through the principle of focus (see Chapter 2.3), which remains a considerable task given the scope of the available data. Based on the previously conducted coding, the case selection will concentrate on distinctive compositions of pictures (and their elements) within profiles and their function to document various modes of attraction. While the previous assessment helps to understand the modes of attraction across the entire spectrum on Tinder (within the theoretical limitation of the sampled clusters), the study ultimately strives to understand (1) what visual representations are typical for the respective modes of attraction, and (2) what modes are typical for the investigate clusters. Therefore, the case selection must account for what modes of attraction constitute the dominant orientations per cluster, how these orientations are documented, and whether there are differences in how certain orientations are documented across different clusters. It is suggested to employ statistical methods to identify (1) which modes of attraction are significant for the 12 investigated clusters, and (2) which combinations of visual attributes are significant for the aforementioned modes of attraction.[10] The statistically significant cases constitute the pool for the final case selection that will be used in the formal application of the documentary interpretation. One such statistical method can be configural frequency analysis.

Configural frequency analysis (CFA) (Lienert, 1969) was designed in order to "[…] detect patterns in the data that occur significantly more or significantly less often than expected by chance" (Schrepp, 2006, p. 3). Applied to the complex data operationalization provided by the computer-assisted image assessment of the profiles (as configural patterns) and within the context of the herein presented research interest, CFA can be used to identify statistically significant distributions of (1) modes for the clusters, and (2) image-attribute distributions for the modes that "occur more often [or less] as expected by chance" (Schrepp, 2006, p. 4). These significant configurations are also called CFA-

10 The suggestion of statistical methods must not be mistaken for a bias concerning statistical representativeness, which is not the aim of praxeological typification in the first place (Wohlrab-Sahr & Przyborski, 2018, pp. 94–95). Instead, this step is designed to supplement the case selection for the documentary interpretation.

Type/Antitypes. Such identification of significant visual configurations is conceptualized as a means of assessing the correlations between the tentative orientations and the identified visual elements within the sample. By identifying the relationship between the orientations and visual patterns, the CFA-Types serve as support for the previously discussed principle of focus. As a result, the case selection for the formal documentary picture interpretation will concentrate on the profiles that belong to the significant CFA-Types of the respective clusters. The R package confreq (Heine et al., 2021) provides a simple software solution to conduct CFA within the scope described above.

Resource

- confreq: https://cran.r project.org/web/packages/cfa/index.html
- R and confreq tutorial: https://youtu.be/T6fbc2-jvpo

5 Conclusion

This paper discussed the benefits and obstacles of larger qualitative samples for documentary research of conjunctive spaces of experience as it became evident during the planning of the project entitled *The Presentation of Attraction in Online Dating: A Documentary Interpretation of Tinder Profiles in Germany, South Korea, and Hong Kong*.

The discussion stressed how the investigation of conjunctive spaces will inevitably require a larger sample range that accounts for the various orientations and their iconic expressions that will emerge due to the inherent intersectionality of the lived realities of the informants. This argument also advocates the reconsideration of the established theoretical sampling, which must provide an adequate number of cases that allow various orientations to be documented. This is facilitated by collecting larger qualitative samples within the theoretically conceived limitation of the to-be-researched conjunctive space (that is, the clusters) and by refraining from an ongoing, case-centred sampling. The introduced computer-assisted image assessment illustrates how modern technological means can support the understanding and organization of such larger visual samples for the documentary interpretation of pictures. While being developed particularly for the aforementioned research project, the computer-assisted image assessment can be transferred with little effort to other samples, which is predominantly due to the high flexibility of PixPlot in clustering visual data independent of fixed, predefined categories. This is contrasted by the more limited transferability of the shot type identification, as it was developed first and foremost for portraits. It is important to stress that the codes of the operationalization phase are inevitably biased towards certain elements of the iconic, here predominantly the scenic choreography. This bias is an outcome of the relational comparison of PixPlot and thus reflects a certain image-

semantic dominance of certain elements. However, this does not mean that other dimensions of analysis, like the projection of perspective, shall be neglected throughout the in-depth interpretation.

In conclusion, the computer-assisted image assessment introduced herein constitutes a simple proof of concept concerning the utilization of modern means of computer vision that shall incentivize research designs that implement and benefit from larger qualitative samples. It is pivotal that the technical reliance of the computer-assisted image assessment on heuristic and axial coding must not be mistaken for a preference for a logic of subsumption over a logic of reconstruction, as the approach presented herein is designed to assess the data prior to the selection of the documentary method and in support of the latter.

References

Berger, P. L., & Luckmann, T. (1967). *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. Anchor Books.

Bohnsack, R. (1999). *Reconstructive Sozialforschung: Einführung in Methodologie und Praxis qualitativer Forschung* [Reconstructive Social Research. An Introduction to Qualitative Methods] (3rd ed.). Springer.

Bohnsack, R. (2007). Typenbildung, Generalisierung und komparative Analyse: Grundprinzipien der dokumentarischen Methode [Type Formation, Generalization and Comparative Analysis: Basic Principles of the Documentary Method]. In R. Bohnsack, I. Nentwig-Gesemann, & A.-M. Nohl (Eds.), *Die dokumentarische Methode und ihre Forschungspraxis: Grundlagen qualitativer Sozialforschung* (2nd ed., pp. 225–254). VS Verlag für Sozialwissenschaften.

Bohnsack, R. (2008). The Interpretation of Pictures and the Documentary Method. *Forum: Qualitative Social Research*, *9*(3), 1–17.

Bohnsack, R. (2011). *Qualitative Bild- und Videointerpretation* [Qualitative Image and Video Interpretation] (2nd ed.). Verlag Barbara Budrich.

Bohnsack, R. (2014). Habitus, Norm und Identität [Habitus, Norm, and Identity]. In W. Helsper, R.-T. Kramer, & S. Thiersch (Eds.), *Schülerhabitus. Theoretische und empirische Analysen zum Bourdieuschen Theorem der kulturellen Passung* (pp. 33–55). Springer VS.

Bohnsack, R. (2017). Praxeological Sociology of Knowledge and Documentary Method: Karl Mannheim's Framing of Empirical Research. In D. Kettler & V. Meja (Eds.), *The Anthem Companion to Karl Mannheim* (pp. 199–220). Anthem Press.

Bohnsack, R. (2018). Dokumentarische Methode [Documentary Method]. In R. Bohnsack, A. Geimer, & M. Meuser (Eds.), *Hauptbegriffe Qualitativer Sozialforschung* (4th ed.). UTB/Barbara Budrich.

Bohnsack, R. (2020a). Iconology and Documentary Method in the Interpretation of Divergent Types of Visual Materials. In L. Pauwels & D. Mannay (Eds.), *The Sage Handbook of Visual Methods* (2nd ed., pp. 397–412). Sage.

Bohnsack, R. (2020b). *Pesquisa social reconstrutiva. Introdução aos métodos qualitativos*. Petrópolis.

Bohnsack, R., Hoffmann, N. F., & Nentwig-Gesemann, I. (2019). Typenbildung und Dokumentarische Methode [Type Formation and the Documentary Method]. *Jahrbuch Dokumentarische Methode*, 17–50. https://doi.org/10.2307/j.ctvdf047g.3

Bohnsack, R., & Nentwig-Gesemann, I. (2018). Typenbildung [Typification]. In R. Bohnsack, A. Geimer, & M. Meuser (Eds.), *Hauptbegriffe Qualitativer Sozialforschung* (4th ed., pp. 237–241). UTB/ Barbara Budrich.

Cherif, I., Solachidis, V., & Pitas, I. (2007). Shot type identification of movie content. *2007 9th International Symposium on Signal Processing and Its Applications*, March, 1–4. https://doi.org/10.1109/ISSPA.2007.4555491

Coenen, A., & Pearce, A. (n.d.). Understanding UMAP. *GitHub*. Retrieved December 19, 2021, from https://pair-code.github.io/understanding-umap/

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, *13*(1), 3–21. https://doi.org/10.1007/BF00988593

Deng, J., Guo, J., Zhou, Y., Yu, J., Kotsia, I., & Zafeiriou, S. (2019). *RetinaFace: Single-stage Dense Face Localisation in the Wild*. http://arxiv.org/abs/1905.00641

Dörner, O. (2011). Überlegungen zur ikonotopischen Diskursivität lebenslangen Lernens [Reflections on the Iconotopic Discursivity of Lifelong Learning]. *Bildungsforschung*, *1*(8), 165–188.

Endreß, F. (2017). *Bilder des Alterns und der Lebensalter im Bildraum Erwachsenenbildung: Eine vergleichende Analyse unter Berücksichtigung angrenzender Bildräume* [Images of Aging and Age in the Image Space of Adult Education: A Comparative Analysis under Consideration of Adjacent Image Spaces]. Springer VS.

Glaser, B. G., & Stauss, A. L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research.* Aldine.

Glaser, B. G., & Strauss, A. L. (1998). Theoretisches Sampling [Theoretical Sampling]. In B. G. Glaser & A. L. Strauss (Eds.), *Grounded Theory. Strategien qualitativer Forschung.* Verlag Hans Huber.

Goffman, E. (1959). *The Presentation of Self in Everyday Life*. Anchor Books.

Heine, J.-H., Alexandrowicz, R. W., & Stemmler, M. (2021). confreq: Configural Frequencies Analysis Using Log-Linear Modeling. *Cran.r-Project.Org*. https://cran.r-project.org/web/packages/confreq/index.html

Hukkelås, H. (2019). DSFD-Pytorch-Inference. *GitHub*. https://github.com/hukkelas/DSFD-Pytorch-Inference

Imdahl, M. (1996). *Giotto – Arenafresken. Ikonographie – Ikonologie – Ikonik* [Giotto – Arena frescoes. Iconography - Iconology – Iconic]. Wilhelm Fink Verlag.

LeFebvre, L. E. (2018). Swiping me off my feet: Explicating relationship initiation on Tinder. *Journal of Social and Personal Relationships*, *35*(9), 1205–1229. https://doi.org/10.1177/0265407517706419

Li, J., Wang, Y., Wang, C., Tai, Y., Qian, J., Yang, J., Wang, C., Li, J., & Huang, F. (2019). DSFD: Dual shot face detector. *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, 2019-June, 5060–5069. https://doi.org/10.1109/CVPR.2019.00520

Liebel, V. (2010). *Politische Karikaturen und die Grenzen des Humors und der Gewalt: Eine dokumentarische Analyse der nationalsozialistischen Zeitung „Der Stürmer“* [Political Caricatures and the Limits of Humor and Violence: A Documentary Analysis of the National Socialist Newspaper “Der Stürmer”]. Inaugural Work.

Lienert, G. A. (1969). Die Konfigurationsfrequenzanalyse als Klassifikationsmethode in der klinischen Psychologie [Configural Frequency Analysis as a Classification Method in Clinical Psychology]. In M. Irle (Ed.), *Bericht über den 26. Kongress der Deutschen Gesellschaft für Psychologie in Tübingen 1968* (pp. 244–253). Hogrefe.

Mannheim, K. (1964). Beiträge zur Theorie der Weltanschauungsinterpretation [Contributions to the Theory of Worldview Interpretation]. In K. Mannheim (Ed.), *Wissenssoziologie* (pp. 91–154). Luchterhand.

Mannheim, K. (1982). *Structures Of Thinking*. Routledge.

Match Group. (2021). *Business Overview: May 2021*.

McInnes, L. (2018). PixPlot. *GitHub*. https://Umap-Learn.Readthedocs.Io/. https://umap-learn.readthedocs.io/en/latest/interactive_viz.html#pixplot

McInnes, L., Healy, J., & Melville, J. (2018). *UMAP: Uniform Manifold Approximation and Projection for Dimension Reduction.* http://arxiv.org/abs/1802.03426

Nohl, A. (2012). Dokumentarische Methode in der qualitativen Bildungs- und Arbeitsforschung. Von der soziogenetischen zur relationalen Typenbildung [Documentary Method in Qualitative Educational and Labor Research. From Sociogenetic to Relational Type Formation]. In K. Schittenhelm (Ed.), *Qualitative Bildungs- und Arbeitsmarktforschung. Grundlagen, Perspektiven, Methoden* (pp. 155–182). Springer VS.

Panofsky, E. (1979). Zum Problem der Beschreibung und Inhaltsdeutung von Werken in der bildenden Kunst [On the Problem of Describing and Interpreting the Content of Works in the Fine Arts]. In E. Kaemmerling (Ed.), *Bildende Kunst als Zeichensystem: Ikonographie und Ikonologie: Theorien, Entwicklung, Probleme* (pp. 185–206). DuMont.

Peirce, C. S. (1991). *Schriften zum Pragmatismus und Pragmatizismus* [Writings on Pragmatism and Pragmatism] (K.-O. Apel (Ed.)). Suhrkamp.

Przyborski, A., & Wohlrab-Sahr, M. (2014). Die dokumentarische Methode [The Documentary Method]. In A. Przyborski, & M. Wohlrab-Sahr (Eds.), *Qualitative Sozialforschung. Ein Arbeitsbuch* (4th ed., pp. 277–315). de Gruyter.

Schrepp, M. (2006). The use of configural frequency analysis for explorative data analysis. *British Journal of Mathematical and Statistical Psychology*, *59*(1), 59–73. https://doi.org/10.1348/000711005X66761

Timmermans, E., & De Caluwé, E. (2017). Development and validation of the Tinder Motives Scale (TMS). *Computers in Human Behavior*, *70*, 341–350. https://doi.org/10.1016/j.chb.2017.01.028

Weiser, D. A., Niehuis, S., Flora, J., Punyanunt-Carter, N. M., Arias, V. S., & Hannah Baird, R. (2018). Swiping right: Sociosexuality, intentions to engage in infidelity, and infidelity experiences on Tinder. *Personality and Individual Differences*, *133*, 29–33. https://doi.org/10.1016/j.paid.2017.10.025

Wohlrab-Sahr, M., & Przyborski, A. (2018). Generalisierung [Generalization]. In R. Bohnsack, A. Geimer, & M. Meuser (Eds.), *Hauptbegriffe Qualitativer Sozialforschung* (4th ed., pp. 94–96). UTB/Barbara Budrich.

YaleDHLab, & Duhaime, D. (2018). PixPlot. *GitHub*. https://github.com/YaleDHLab/pix-plot