# Mixed Methods in Research on the Psychology of the Internet and Social Media (POISM)

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**Abstract**: Research on the psychology of the Internet and social media (POISM) is characterized by a heavy methodological compartmentalization. In the current contribution we show empirically that 1. quantitative methods constitute the preferred gold standard of the field's mainstream (favored over qualitative and mixed methods), 2. the field is divided into separate communities of practice (psychology, communication, cultural/media studies), each with their own type of causal claims and associated methods. To show this we content analyze published articles in 2020 across six pertinent POISM journals for instances of *quantitative*, *qualitative*, and *mixed methods* as well as *regularity-type* versus *subjective meaning-type* causal logic. We find that regularity-type causal logic is at the center of quantitative research practices in psychology and communication, while qualitative subjective meaning-type causal logic is adopted by scholars in cultural/media studies, with hardly any overlap in between, and only few mixed methods studies. To describe how the research area would profit from mixed methods approaches, we subsequently present a mixed methods study about social media-based integration patterns of Korean and Turkish-heritage individuals in Germany. We conclude by dissolving some of the exclusive stereotyped notions of causality and methods in POISM research and suggest avenues for methodologically more inclusive practices of inquiry.

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## 1. Introduction

Whether Google, Facebook, Snapchat, or Instagram, many key areas of our lives are heavily dependent on the interactions we perform using these media for a variety of information- and entertainment-related reasons: searching for information online, communicating with our family, friends, and colleagues, learning and educating ourselves, purchasing commodities, watching videos and films, or fighting for social justice—through our interactions with the Internet and social media we have produced distinct communication patterns with a substantial impact on our lives, our identities, and relationships (McQUAIL & DEUZE, 2020). The psychology of the Internet and social media (a term coined by us and henceforth abbreviated as POISM) is thus a highly current and interdisciplinary research field, comprising a large variety of communities of research practice, including psychologists, communication scholars, IT specialists, advertising experts, linguists, literary and media studies scholars, cultural anthropologists, and many more. It is important to underline that scholars working in this field are connected through their pronounced interest in human cognition, emotion and behavior in relation to the Internet and social media, i.e., subjects that are at the center of the self-definition of psychology as a discipline (ZAGARIA, ANDO & ZENNARO, 2020). In our current paper, even though psychologists represent only one of the disciplines with a focus on POISM, we chose an overarching term for the field to highlight precisely this *psychological* emphasis. [1]

Despite the rich variety of perspectives brought to bear on online cognition, emotion, and behavior, POISM scholarship appears decidedly less colorful to us with respect to methodological integration: Empirical studies in the field are often designed in an either exclusively quantitative or exclusively qualitative tradition, with scholars either concerned with causality or not, either examining causality through a quantitative hypothetico-deductive lens or exploring meaning-making through an inductive exploratory lens. In fact, despite the richness and complexity of the subject matter of POISM (which will be illustrated below), we have the impression that this research area is methodologically compartmentalized. DEUZE argued similarly in the following quote:

> "Given the extraordinary pluralism and ongoing convergence and hybridisation of the field, it is now impossible to find any single agreed definition of a science or study of communication. Indeed, one could argue that no 'science of communication' and 'study of media' can be independent and self-sufficient, given the origins of the study of media and (mass) communication in many disciplines and the wide-ranging nature of the issues that arise, including matters of economics, law, politics and ethics as well as culture. The study of communication has to be interdisciplinary and must adopt varied approaches and methods [McQUAIL, 2003]. The range of theory, methods and (operational) definitions in the field of media and mass communication research is neither coherent nor consensual" (2020, p.9). [2]

We agree with DEUZE's observation of a lack of consensus and coherence in the field. In the current paper, we argue that mixed methods approaches would be a

promising avenue for establishing such coherence and consensus. To demonstrate the validity of our observation empirically, we study POISM communities of practice, focusing on 1. their causality assumptions, and 2. their applied research methods.[1] With respect to the first point, causality assumptions, scholars in the field embrace an essentially causal mission in their emphasis of *media effects*. At the heart of POISM research are questions about the *impact* of mediated online environments and interactions *on* individual experiences, perceptions, attitudes, motivations, relationships, identity, information processing, learning, and a large variety of other fundamentally psychological variables (OLIVER, RANEY & BRYANT, 2020; SUNDAR, 2015). Such an effects model rests on an inherent causal logic "for the purpose of *predicting* and *explaining* the likely effects of online interaction" on the individual or collective that is using the Internet and social media (WALTHER, VAN DER HEIDE, RAMIREZ, BURGOON & PENA, 2015, p.5; emphasis added). At the forefront of studies in the field have thus been social-scientific quantitative approaches in which scholars have tested cause-effect relationships in the context of carefully controlled, often experimental research designs, using quantitative methods of data collection and analysis for the purpose of hypothesis-testing (PROT & ANDERSON, 2013). This approach has been evaluated by the POISM community as the gold-standard toward valid media effects conclusions, and other, more humanistic and interpretive, approaches have been relegated to a marginal position—despite the strong but often overlooked association between qualitative research and our understanding of causal effects (MAXWELL, 2004, 2020, 2021). We will unfold this argument in more detail in the current paper. [3]

In addition, with respect to the second point above, the applied methods that dominant communities of practice in POISM—i.e., psychology, communication, and cultural/media studies (McQUAIL & DEUZE, 2020; SUNDAR, 2015; see further below)—choose to study their subject matter have been methodologically disintegrated: Psychology and communication studies scholars have typically had a preference for quantitative methods; cultural/media studies scholars have tended to prefer qualitative methods. While we appreciate the diversity of approaches within POISM research, and across communities of practice, we criticize here the lack of *methodological integration*. We conceptualize methodological integration in line with current definitions of mixed methods (MM) as a conscious attempt of scholars to, apart from combining quantitative and qualitative approaches, also relate and synthesize their findings to one another. According to TEDDLIE and TASHAKKORI "[f]or a MM researcher, a crucial stage of the study is to integrate the two sets of inferences generated by the two strands of the study" (2009, p.300). For achieving integration, therefore, the outcomes of quantitative and qualitative study-strands need to be integrated by means of a "cross-over analysis" (ONWUEGBUZIE & COMBS, 2010, p.411), "an explicit conversation between (or interrelating of) the quantitative and qualitative components" (PLANO CLARK, 2019, p.108), to reach "a new whole or a more

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1   We define "communities of practice" in line with DENSCOMBE (2008, p.276) as research communities that have a shared understanding of the questions that are most meaningful to them as well as the methods they choose to study these, and that are confined by social "group norms" (p.279) enforced by funders, journal editors, scholarly audiences (see a discussion of communities of practice in PLANO CLARK & BADIEE, 2010, pp.283ff.).

holistic understanding than achieved by either alone" (FETTERS & MOLINA-AZORIN, 2017, p.293). Applied to the main goals of POISM researchers, to understand and explain human cognition, emotion, and behavior in relation to the Internet and social media, we are criticizing here the lack of integration and cross-disciplinary synthesis of inferences *across* methodological camps in POISM, which in our view (as we will show below) has resulted from a predominance of quantitative research, a marginalization of qualitative research, and, most importantly, the lack of mixed methods research in the field. We argue in the current paper that mixing quantitative and qualitative methods in POISM would bring to the field a more integrated, holistic meta-perspective of mediated causation that is currently lacking, and increase the causal validity of theories in the field (KELLE, 2008; MAXWELL, 2004; ONWUEGBUZIE & JOHNSON, 2006). In our view, this could be done by either integrating a *regularity*-type with a *subjective meaning*-type of causal reasoning (MAXWELL, 2004, 2020, 2021) or by walking diverse paths (quantitative and qualitative) towards *regularity-* and *subjective meaning-type* causal reasonings (we unfold both of these arguments below)[2]. [4]

In the current paper we aim to reach two goals, 1. to highlight the methodologically compartmentalized (and with DEUZE, 2020, incoherent and non-consensual) state-of-the-art in research on the psychology of the Internet and social media in line with the two points raised above (Sections 2 and 3), and 2 to suggest avenues toward a better methodological integration in this research (Section 4). To reach our first goal, we content analyze journals of three communities of practice within POISM for instances of quantitative, qualitative and mixed methods and examine the type of causal reasoning that is used in articles appearing in these journals throughout 2020 (Section 3). To reach our second goal, we present an example mixed methods study of POISM and showcase the advantages of mixing methods in the field, here for the purpose of presenting two avenues (one quantitative, one qualitative) to arrive at subjective meaning-type causal insights (Section 4). Against this background we argue in line with McQUAIL (2003) that like communication scientists POISM scholars would profit from methodological integration in a way that allows combining elements of quantitative and qualitative research approaches in order to increase the breadth and depth of understanding in this vibrant and interdisciplinary research area (JOHNSON, ONWUEGBUZI & TURNER, 2007), to *integrate* the hitherto unrelated findings coming out of *regularity*-type and *process*-type causal designs existing side-by-side (Section 5), and hereby increase the causal validity of relevant theories (KELLE, 2008). [5]

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2   We would like to note that we are aware that the types of causal reasoning presented here are only a few among many. A discussion of various types of causality can be found in Section 2.2.

## 2. Defining the Field: What Is the Psychology of the Internet and Social Media (POISM)?

The psychology of the Internet and social media has been a vibrant field of research since the advent of the World Wide Web, with researchers focusing on the interaction between humans and Internet technology (NABI & OLIVER, 2009; SUNDAR, 2015; WALLACE, 2016) and lending POISM research labels as various as the *psychology of communication technology* (SUNDAR, 2015), the *psychology of the Internet* (WALLACE, 2016), *media and communication research* (HANSEN & MACHIN, 2019; JENSEN, 2021a), and *cultural and communication studies* (SEDLAKOVA, 2014). Scholars in this field have, among other topics, been examining the central human goals and needs that media users bring to Internet technology as well as the social/individual experiences and effects of using the Internet and social media (GACKENBACH, 2011; NABI & OLIVER, 2009; OLIVER et al., 2020). Of course, the focus of much of this work has not always been psychological per definition. But a considerable proportion has in fact had a specifically psychological emphasis—even though produced by diverse communities of practice. It is this in our view highly vivid intersection that we investigate in our current paper. We believe that this is a worthwhile endeavor to showcase the potential merits of mixed methods approaches for psychological questions associated with this field. [6]

### 2.1 Topical areas of POISM and their relationship with MM

Among the core areas of research on POISM have been topics as various as group identity and social influence (SPEARS & POSTMES, 2015), self-disclosure and privacy (CLARK-GORDON, BOWMAN, GOODBOY & WRIGHT, 2019), health and well-being (PETERS et al., 2017), education and literacy (GLASSMAN, 2016), social justice and political participation (HEGER & HOFFMANN, 2021), and fake news and disinformation (PENNYCOOK & RAND, 2021). We would like to believe that mixed methods could be important for most of these areas, as scholars are dealing with a very broad array of questions related to human Internet use, experiences, and effects. We would like to think that in the context of research in this area, a subject matter that is likely to be complex and rich, scholars use the whole arsenal of methods at their disposal, including all kinds of both quantitative and qualitative methods and, more importantly, integrate these (see our definition of integration in Section 1). Invoking some of the prototypical (and stereotypical) characteristics associated with quantitative and qualitative research (see, for example, LINDLOF, 2009; YANOVITZKY & GREENE, 2009), we would like to think further that POISM researchers tend to *mix* quantitative and qualitative methods and use numerical, verbal, and visual data in combination, "qualitatively describ[e] how individuals interact with others online and quantitatively assess[...] the trends of different interaction types" (PLANO CLARK & BADIEE, 2010, p.277), arrive at *both* explanatory and exploratory conclusions and relate these to one another in the same study, assess variances and discover meaning in the same study, and integrate deductive and inductive perspectives to examine something as diverse as Internet and social media behavior. We would like to think that they study their

subject matter simultaneously in both breadth and depth, using variable oriented procedures associated with quantitative data ("how true, present, much, or correlated?") as much as meaning-oriented procedures associated with qualitative data ("how and why?"; p.280), toward both theory testing and theory building. [7]

We are certainly aware that these are broad generalizations of quantitative and qualitative research, and that equating quantitative research with explanation, deductive approaches, breadth, and qualitative studies with exploration, inductive approaches, and depth is insufficient to reflect the complexity of goals that researchers in both methodological traditions like to pursue (see, for instance, methods like comparative case studies or process tracing that cannot be put into only one camp; SCHNEIDER & ROHLFING, 2013). We nevertheless invoke the contrast between quantitative and qualitative research purposefully here for the sake of describing the field of POISM. Our impression of the nature of research in this field is one of an existing preference for quantitative methods at the expense of qualitative methods, let alone their mix or integration (see BOWKER, 2001, for an exception). Our impression is, further, that the central goal of scholars in this area has been to predominantly test causal models of human behavior on the Internet using quantitative approaches and that they have neglected qualitative perspectives on causation (see the different conceptualizations of causation explained in more detail below; see a rare qualitative POISM study in GOODINGS, 2011). [8]

To reflect this emphasis, we would like to list a few research examples from the field, some foundational earlier ones and some more current: In the *social information processing (SIP) theory of computer-mediated communication* produced in the 1990s, for example, researchers were interested in the *effects* that computer-mediated communication (such as email, network communication, instant messaging, distance learning, etc.) would have on social processes, developing original theories "for the purpose of *predicting* and *explaining* the likely effects of online interaction" (WALTHER et al., 2015, p.5; emphasis added). A key question scholars initially sought to answer at the time was what *effects* specific characteristics of largely text-based communication would have on human communication behavior. A central concern was the lack of non-verbal cues in text-based computer-mediated communication, its "cues-filtered-out" nature (WALTHER et al., 2015, p.5, with reference to CULNAN & MARKUS, 1987), leading, perhaps, to an impoverished form of communication online, one that lacks the non-verbal cues associated with human emotions and relationship. By means of theories from social psychology and experimental research designs, researchers were able to demonstrate, however, that in environments devoid of such cues, users enrich their written communication in ways that make up for their lack, translating affective non-verbal behavior into a variety of verbal cues (WALTHER et al., 2015). In more current POISM studies, scholars have similarly asked causal questions: In *privacy research*, for example, it has been studied how the loss of informational privacy influences our online communication and whether privacy risk and benefit perceptions have an impact on self-disclosure behavior online (MEIER, SCHÄWEL & KRÄMER, 2021). In *online incivility and*

*anti-social behavior* research scholars asked causal questions on the impact of the Internet and social media on anti-social behavior. For example, RODEN and SALEEM (2021) have recently examined how being confronted with racial comments online can mobilize users' "allyship" (p.383) and prosocial action for racial equality. In the area of *health and well-being* (REINECKE & OLIVER, 2017), important questions that researchers sought to answer have been: What are the health benefits and health downsides of using the Internet and social media? What are the negative and positive effects of social media use on well-being? For example, FREYTAG et al. (2021) have newly examined the effects of permanent connectedness on stress experiences of media users. [9]

We list these examples here to bring into visibility that the primary aim of scholars in POISM had (and still has) a predominantly *causal* mission, focusing on the effects of variations in the mediated setting on variations in human communication behavior. In other words, scholars in this field aim to *explain* human communication behavior by identifying (often manipulating) the causal conditions that produce it (PROT & ANDERSON, 2013; YANOVITZKY & GREENE, 2009). Experiments in laboratory settings are an often-chosen research design to accomplish this, especially for the sake of manipulating independent variables and testing the effect this manipulation has on a chosen dependent variable. The dependent variable is measured by means of questionnaires, physiological data, reaction time tasks, word-completion tasks, observations of behavior, and many other highly creative strategies (see for instance the hot sauce paradigm described in PROT & ANDERSON, 2013, where in the context of a study testing violent game effects the dependent variable aggression is measured by the amount of hot sauce a participant wants another person, who is known to dislike spicy food, to consume). Scholars in POISM have also used cross-sectional correlational and longitudinal approaches to test the effects of mediated settings on human communication behavior, typically assessing both independent and dependent variables by means of self-report measures, and modeling cause-effect relationships, along with mediating and moderating effects. [10]

While the emphasis on causality, causal designs, and causal research questions is not overly surprising for an empirical social science, and one that is primarily quantitative, we would like to draw attention here to the definition of causality that is endorsed by scholars in the field: The predominant definition is a narrow one where causality is conceptualized as causal influence, variance, theory-testing. Causality in terms of subjective interpretation and meaning-making appears to be much neglected in the scholarship on POISM. Questions touching on the subjective experiences and meanings that individuals attach to Internet and social media use, in the context of their day-to-day communication practices and alluding to processual characteristics of their interaction with the Internet and social media, seem fairly rare. In other words, researchers in this field have rarely attempted to understand *subjective reasons* within explanatory designs focusing on the *causes* of mediated behavior. In the following, we describe these two different conceptualizations of causality in more detail. [11]

**2.2 Conceptualizing causality in the context of POISM**

Central in the majority of works in the area of POISM is the conceptualization of cognition and behavior on the Internet and social media in the form of a *regularity* model of causation (MAXWELL, 2004, p.244; see examples above; see also OLIVER et al., 2020, for an overview). The idea behind such a view is that causality is a matter of regularities between independent and dependent variables, such that a change in one leads to a change in the other (see MORGAN, 2013, for a review of various causal models in the social sciences coming from the regularity principle)[3]. Accordingly, causal inference requires the comparison of outcomes across situations in which the alleged causal factor is present versus absent or varies in strength, while at the same time controlling for alternative explanations (YANOVITZKY & GREENE, 2009; see TACQ, 2011, for an overview of philosophies of science related to the question of causality in qualitative and quantitative research). This regularity theory is a central theory for quantitative researchers (and psychologists; JOHNSON et al., 2019; MAXWELL, 2004, 2020, 2021), and a guiding principle for researchers who study POISM. It is also widely considered as the superior way of carrying out research, by which scientists strive for the discovery of general laws and nomothetic explanations (MAXWELL, 2021[4]; see the term "universalism" in JOHNSON et al., 2019, p.146), and it is even regarded by some as the scientific method *per se* (BREUER, 2020). According to MAXWELL this claim of superiority "led to the dismissal of qualitative methods, or their relegation to 'exploratory' research [...] and was a factor in the emergence of the 'paradigm wars' between qualitative and quantitative research in the 1980s" (2021, p.112). Still today, we see qualitative research relegated to a *marginal* position in psychology more generally (BREUER, 2020), and media psychology in particular (LINDLOF, 2009; ODAĞ & SCHREIER, 2020). In *mainstream* POISM research, by contrast, quantitative methods and regularity assumptions are much more pronounced (see Section 2.1; for a comprehensive review of mainstream research in this field see OLIVER et al., 2020; SUNDAR, 2015). [12]

In recent years, proponents of MM approaches in the social sciences have taken issue with the superiority of the nomothetic general-law type of causation (e.g., GOERTZ, 2016; JOHNSON et al., 2019). More specifically, the regularity model of causation has been challenged with respect to its sufficiency for the laws of human cognition and behavior that are central in psychology. While the regularity model was objected to, however, causality was not entirely rejected as a core principle of research but considered incomplete without alternative conceptualizations (see the pluralistic theory of causation in JOHNSON et al.,

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3   See the terms "determinism" and "causal explanation" in JOHNSON, RUSSO and SCHOONENBOOM (2019, p.145ff.); "cross-case causal inference" in GOERTZ (2016, p.4); "symmetric causal arguments" in GOERTZ and MAHONEY (2012, p.225).

4   We deviate from this point of view by arguing that the regularity model of causality itself is not directly associated with nomothetic explanations, i.e., generalizations to a population (external validity). We argue that for regularity effects to be generalized to a population we would have to use larger random samples—the regularity design of our study would be associated with internal validity; the random sample with external validity (BOEHNKE, LIETZ, SCHREIER & WILHELM, 2011). We agree with MAXWELL (2021), however, that scholars often use regularity designs in conjunction with larger (sometimes random) samples.

2019; KELLE, 2008). This criticism was formulated by MAXWELL, for example, in a variety of publications (2004, 2012, 2021), essentially arguing that qualitative researchers, by accepting causality as the subject matter of quantitative researchers and adopting the scientific hypothetico-deductive logic, "threw the baby out with the bath water" (2012, p.656). According to MAXWELL (2020) many qualitative researchers rejected positivist accounts of causation and generalization. They saw the strength of qualitative research, instead, in their focus on how- rather than why-questions, and preferred to use them to understand subjective meaning and interpretation rather than explain variance or regularity among variables. In other words, for qualitative researchers such as LINCOLN and GUBA (1985), the goal of qualitative research was *not* to create general laws, claiming that generalization is not even possible (GUBA & LINCOLN, 1989, p.36). For qualitative researchers, the central goal was to understand the meaning that individuals attached to any subject matter, in terms of "people's beliefs, values, theories, understandings, and other 'mental' phenomena, what is often encompassed by the phrase 'participants' perspectives' in what is often termed 'interpretive inquiry'" (MAXWELL, 2020, p.181). Within POISM research, this perspective was most vividly taken up by researchers working in the area of media and cultural studies (HANSEN & MACHIN, 2019; JENSEN, 2021b, 2021c; see in more detail below). Unfortunately, according to MAXWELL (2020), researchers who embraced this anti-causalist conceptualization of qualitative methods as essentially distant from causality and general laws and substantially close to subjective meaning-making, catalyzed a polarization between quantitative and qualitative research goals and regrettably denied a *common* goal underlying both approaches, namely causal inference itself. [13]

According to JOHNSON et al. (2019), KELLE (2008), MAXWELL (2012), SCHNEIDER and ROHLFING (2013), to mention only a few, both quantitative and qualitative research have to do with causality. But the types of causality that researchers from the two traditions espouse differ: While quantitative researchers seek to find causality in the co-variance of independent and dependent variables (*regularity-type* of causation), qualitative researchers embrace a *subjective meaning-type* of causation and value meanings and beliefs as part of the causal process (see JOHNSON et al., 2019, for a thorough description of different types of causal claims across quantitative and qualitative methods; for expressly causal designs in qualitative research see BURKART, 2020; MAYRING, 2020; for alternative process-related notions of causality, see HEDSTRÖM & SWEDBERG, 1996)[5]. Put differently, according to this latter and more *qualitative* concept of

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5   We would like to acknowledge once more that regularity-type and subjective meaning-type causal claims are only two among many. We consider process-type causal reasoning, for example, to be distinct from the types we focus on here, in its emphasis on social mechanisms (see, for example, HEDSTRÖM & SWEDBERG, 1996). A similar process-type reasoning can be found in the case-based analysis and process tracing literature in political science, including RAGIN (2014 [1987]) on the *comparative method* and GEORGE and BENNETT (2005) on *case studies and theory development*. These types of reasoning are neglected in the current paper for reasons of space. We deliberately focus narrowly on regularity- and subjective meaning-type causal inference here because we believe these to constitute the most tangible types of causal reasoning for the field of POISM. Put differently: Given the current methodological fragmentation in POISM, regularity- and subjective meaning-type causal logics constitute, perhaps, the most acceptable ways forward toward methodological integration, especially as both paths are

causality, human behavior is caused by subjective meaning-making, and any attempt to explain human behavior without examining subjective interpretations is insufficient to understand the underlying causes (see CUPCHIK, 2001, for a similar argument). Subjective values, beliefs, and interpretations constitute, perhaps, the strongest influence on actions, and are thus inherently causal in nature—not in a regularity sense but in a contextual, and subjective sense (MAXWELL, 2012; see the term "local causal understanding" in JOHNSON et al., 2019, p.145; and the term "asymmetrical causal relationships" in GOERTZ & MAHONEY, 2012; p.225). According to this view of causation, the *causes* of human behavior cannot be fully understood if local realities and subjective meanings (*reasons*) are eschewed by researchers. [14]

For psychology as an academic discipline, a similar critique was formulated by GROEBEN, WAHL, SCHLEE and SCHEELE as early as 1988 in their research program on *subjective theories* (see also GROEBEN & SCHEELE, 2020). They distinguished between *Verhalten* [behavior] and *Handeln* [action] and argued that while *behavior* is directly observable and a mechanistic response to environmental forces (in the sense of the regularity-type model of causality above), *action* is contingent on subjective reasons, motives and intentions, and the result of an individual's engagement in constructive and reflexive meaning-making (in the sense of a subjective meaning-type model of causation above). GROEBEN et al. (1988) pointed out that psychology as a science about human cognition, emotion, and behavior was incomplete if its image of humankind was exclusively centered on a mechanistic, behavioristic model. They advocated the integration of a decidedly *epistemological* image of humankind into psychology, a model of humans as reflexive agents of their subjective *reasons* for actions.[6] [15]

Applying this view to the context of research on POISM, following the explicit aim to explain human behavior on the Internet and social media, regularity models of causation are incomplete if the *reasons* that Internet users develop toward a specific interaction or diverse verbal and visual posts on social media are left out (see GNAMBS & BATINIC, 2020, for an overview of qualitative research in POISM). We are arguing here in line with JOHNSON et al. that POISM researchers would profit from a more diverse "causal mosaic" (2019, p.144) in their theories and research practices, by making use of "two cultures" of empirical causal analysis (GOERTZ & MAHONEY, 2012, p.1), and combining causal inferences depending on the actual research problem (KELLE, 2008). With this claim in mind, we consider the marginality of the interest of POISM researchers in the meaning-making and *reasons* of media users within their own day-to-day communication practices problematic. [16]

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already in use in the field.

6   GROEBEN et al. (1988) would in fact argue that *any* type of causal reasoning, including regularity- and process type causal arguments, is incomplete without a focus on subjective reasons.

### 2.3 Disciplinary pillars of POISM and their connection with quantitative and qualitative methods

Looking at the disciplinary pillars of POISM, we see a related type of methodological disintegration, namely one of compartmentalized methods across the disciplinary communities in this field (McQUAIL & DEUZE, 2020). Despite the interdisciplinarity of researchers in the area, including psychologists, communication scholars, IT specialists, linguists, literary scholars, anthropologists and more, POISM research rests on mainly three distinct though overlapping disciplinary cornerstones, psychology, communication, and cultural/media studies (HANSEN & MACHIN, 2019; McQUAIL & DEUZE, 2020; SUNDAR, 2015). Needless to say, these are no monolithic entities, and their boundaries are considerably permeable in POISM today, especially as a strong interdisciplinary connection and collaboration across disciplines is required per definition for psychological questions related to media and communication (HANSEN & MACHIN, 2019; JENSEN, 2021c; McQUAIL & DEUZE, 2020; OLIVER et al., 2020; SEDLAKOVA, 2014). Multi- and interdisciplinarity is thus considered a pronounced strength of this field of research (HANSEN & MACHIN, 2019; McQUAIL & DEUZE, 2020). Despite its strong interdisciplinary footing, however, and mirroring the separation of quantitative and qualitative methods in the POISM studies mentioned above, the very disciplines representing this research area have remained methodologically divided themselves, into *either* of two perspectives: social-scientific and humanistic (JENSEN, 2021b, 2021c; LANG, 2013; VORDERER, PARK & LUTZ, 2020). The social-scientific perspective is often equated with effects questions in POISM, in the sense of the abovementioned *regularity model* of causality related to using the Internet and social media (MEYEN, 2021; OLIVER et al., 2020). Scholars adopting the humanistic perspective, by contrast, acknowledge that media and communication behavior is embedded and ritualized within cultural contexts and structures of power, and emphasize the *subjective meaning model* of causality described earlier (JENSEN, 2020b; SEDLAKOVA, 2014). In line with this argument, we claim, next, that two of the mainstream pillars of POISM, namely psychology and communication, represent social scientific quantitative research traditions, while the third and marginalized pillar, cultural/media studies, rests on an essentially humanistic qualitative research tradition. While quantitative methods are thus prominent in POISM studies produced in psychology and communication disciplines, qualitative methods predominate in research located in media studies. Similarly, regularity- and subjective meaning-type causality models are fragmented across the three disciplines: We see little of both across the three disciplines, and we see little mixing. We will argue in the following that this fragmentation is associated with knowledge about POISM phenomena that is bound to be incomplete. This knowledge in our view is based on a lack of coherence and consensus (DEUZE, 2020), insight into the inner reasons behind human behavior (GROEBEN et al., 1988), and, in MM terms, methodological integration (see Introduction and Section 2.2. for a definition of these terms). [17]

*Psychological studies* in POISM, most commonly referred to as *media psychological* research, are about the psychological mechanisms unfolding in the

context of the interaction between humans and the Internet/social media (DILL, 2013). Psychology became a significant perspective in relation to media use as early as the 1980s, when researchers started paying attention to cognitive processes of individuals who are exposed to media content (LANG, 2013; historical overview in VORDERER et al., 2020). A pronounced goal of psychologists in relation to the Internet and social media has been to explain digitally-enabled behavior and cognition through a social psychological or "micro-level media effects" perspective (VORDERER et al., 2020, p.11). In VALKENBURG and OLIVER's (2020) terms, media effects are understood as "the deliberate and non-deliberate short and long-term individual and collective changes in cognitions, emotions, attitudes, and behavior that result from media use" (p.17). Media effects are thus associated with constructs that are at the heart of psychology as a science overall (ZAGARIA et al., 2020). Numerous psychological theories have been applied to media effects studies, including, for instance, social-cognitive learning theory, the elaboration likelihood model, mood and emotion theories, and more (VORDERER et al., 2020). A pertinent example are psychological studies of personal and group identity processes unfolding in mediated settings, resting on the *social identity* model of *deindividuation effects* (*SIDE-Model*; POSTMES, SPEARS & LEA, 1998). SPEARS and POSTMES (2015) provided a succinct overview of this vibrant line of experimental research, showcasing how mediated environments on the Internet under certain conditions (such as salience of group membership) constitute contexts in which media users become depersonalized and their group identities strengthened, leading to a pronounced regulation of online interactions by group norms. In other words, mediated online environments are seen by media effects researchers as an ideal breeding ground for a variety of group identities, one in which a large number of stigmatized groups (including vulnerable and radical ones; ODAĞ, LEISER & BOEHNKE, 2019; ODAĞ, ULUĞ & ÜNAL, 2021) can raise their voices and act collectively toward a common cause. Media psychological studies such as these are considered mainstream by POISM researchers, as they are carried out with a natural sciences mission to study mental phenomena as one would study nature (HATFIELD, 1995). Scholars in the field adopt a methodology with emphasis on observation, experiment, quantification and statistical analysis to test regularity-type causality assumptions (ROTH, 2015). Humanistic, interpretive approaches and critical theory are marginalized within this discipline (MEY & MRUCK, 2020). This is unfortunate, however, as any media psychological theory (in line with GROEBEN et al., 1988) can be considered to be incomplete without an understanding of the subjective meanings/interpretations of mediated phenomena for/by media users (their *reasons*). In the SIDE-Model, for example, we have little insight into the subjective experiences and intentions of media users in relation to group membership and identity. A subjective meaning-type understanding of causality is missing (see ODAĞ, ULUĞ, MAGANIĊ & KANIK, 2022, for a qualitative study in which activist group identities are explored in relation to social media use by means of qualitative methods). [18]

*Communication studies* or *communication science* constitute a second academic discipline at the heart of POISM research, with a focus on how "humans exchange messages to manage relationships and obtain information" (ALLEN,

2017, p.xxxv), including communication in interpersonal relationships, social interactions, and through the use of technology (McQUAIL & DEUZE, 2020). Communication is commonly defined as the transmission of messages from a sender to a receiver through some communication channel (often media technology), to send and receive ideas, information, and messages (JENSEN, 2021c; see the SMCR: source, message, channel, receiver model by SHANNON & WEAVER, 1949). By focusing on the effects that messages have on the receiving party, a causal logic in the sense of "functional and dysfunctional impacts of media on individuals" is taken up by communication researchers (JENSEN, 2021c, p.13; see also YANOVITZKY & GREENE, 2009). Such questions are often studied in line with the above regularity model of causation, examining, for example, the impact of media messages on prosocial or violent behavior (YANOVITZKY & GREENE, 2009). According to GROEBEN et al. (1988), once more, the underlying behavioristic model used in this research is incomplete without a focus on human meaning-making, values, intentions, goals of action etc., i.e., phenomena that are easier to grasp with qualitative methodologies. Media effects in terms of the said regularity-model of causation cannot be understood if researchers fail to inspect the subjective *reasons* behind mediated behavior.[7] While communication scholars today advocate for the use of both quantitative and qualitative methodologies (HANSEN & MACHIN, 2019; JENSEN, 2021a; McQUAIL & DEUZE, 2020), we see a historically rooted preference for the former, rendering communication a predominantly scientific subject area with researchers in favor of experimentation and quantification, and including sophisticated statistical methods of data analysis (MEYEN, 2021; YANOVITZKY & GREENE, 2009). Qualitative methods, by contrast, have historically been marginalized and used most often by *critics* of the social-scientific approach, i.e., scholars of cultural/media studies such as HARDT (1979) and HALLORAN (1998). [19]

Scholars in *cultural/media studies* conceive of media as "the production and circulation of meaning in modern societies, enabling collective reflexivity and coordinated action" (JENSEN, 2002, p.9). Researchers in this field thus examine particularly the meaning-making and *reasons* of individual actors bounded within categories as various as "power, inequality, ideology, institutions ... social interaction, language, everyday life and others" (SEDLAKOVA, 2014, p.484). According to this scholarship, studying audiences and their media reception means to study how social individuals interpret a contemporary media product "in the culture and institutions in which it occurs" (ibid.). In this, social audiences' activity in relation to media are conceptualized, not as biographical, but as embedded in the available discourses of their culture (LINDLOF, 2009). In a similar vein, HANSEN and MACHIN (2019) contended that studying media use requires contextualizing the activity in historical and political conditions and cannot be separated from the surrounding technological, economic, social, political environments. In contrast to mainstream communication effects research in the narrower sense of the term (presented above), cultural/media studies at the periphery of POISM research are focused more strongly on local and contextual

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7    GROEBEN et al. argued that *no* causal argument is possible without a focus on subjective reasons, including regularity and process arguments of causality.

interpretations of communication processes. Scholars in this field aim to "expose the hegemonic role of the media and to effect radical change in society" (pp.13f.). As a corollary, and borrowing from cultural studies (HALL, 1980), they make use at once of critical and interpretive approaches, aiming to uncover how individuals act in relation to media and their motives for it. They hereby unravel the shifts that the media catalyze in people's lives, while at the same time paying attention to power, control, and change in society (MURDOCK, 2012). MORLEY (1992), for example, in his seminal 4-year study of the reception of *Nationwide*, a contemporary British current affairs program, demonstrated that interpretations of the program were deeply informed by the social positionings of the audience groups he studied, "particularly their class, occupation, and ethnicity" (LINDLOF, 2009, p.58). In sum, qualitative research methods are dominant in this branch of POISM research. And the key thread running through much of the scholarly work is the conceptualization of an active audience, an "audience-as-agent" rather than "audience as outcome" model (p.54), in line with GROEBEN et al.'s (1988) epistemological rather than behavioristic model of humankind. Scholars in this discipline thus aim to understand the subjective meanings of media activity for the user her- or himself, their *reasons*—in the sense of the above subjective meaning-model of causality. At the same time, their research efforts lack a focus on regularity in the sense of recurring, nomothetic trends of media behavior. Psychologists and communication scholars thus often relegate this type of research to the margins of the field (MEY & MRUCK, 2020; MEYEN, 2021). [20]

Taken together, across the three disciplinary pillars described above, scholars working on POISM topics have brought to bear a large variety of methods and methodologies to their subject matters, both quantitative and qualitative (McQUAIL & DEUZE, 2020; SUNDAR, 2015), and are well-situated in both research traditions. At the same time, the methodological traditions exist in a fairly separate and compartmentalized fashion side-by-side in separate communities of practice, without much methodological integration or mixed approaches. Put differently, quantitative and qualitative studies in POISM are separate and confined to the common methodological traditions of the underlying disciplines in which scholars fail to communicate with each other. In other words, media studies scholars do what psychologists and communication scholars do *not* do, and *vice versa*, rendering their resulting theories of POISM incomplete. Existing research in the field is mostly mechanistic, regularity-driven, and quantitative. The subjective meaning-type model of mediated behavior is relegated to its margins. In addition, and this what we consider most unfortunate, an overarching integration of both perspectives, a holistic understanding (FETTERS & MOLINA-AZORIN, 2017), "an explicit conversation between (or interrelating of) the quantitative and qualitative components" (PLANO CLARK, 2019, p.108) as well as resulting theories, does not yet take place in POISM scholarship. In the following we would like to empirically showcase this fragmentation by content analyzing pertinent journals of the field for instances of quantitative, qualitative, and mixed methods, as well as regularity- versus subjective meaning-type causality respectively. [21]

## 3. A Content Analysis of Journal Articles Produced by POISM Communities of Practice

### 3.1 The content analytical coding scheme

Distinguishing between the three disciplinary pillars of the field, we content analyzed (SCHREIER, 2012) recent publications in journals representing psychology, communication, cultural/media studies. Our coding frame comprised three dimensions: Under Dimension 1 *Method of data collection* we subsumed the categories *quantitative method, qualitative method*, and *mixed methods of data collection*. In Dimension 2 *Method of data analysis* we distinguished the subcategories *quantitative method, qualitative method*, and *mixed methods of data analysis*. In Dimension 3 *Causal reasoning* we zoomed in on the type of causal argument taken up by the authors of the articles/studies published and differentiated between a *regularity-type causal reasoning*, a *subjective meaning-type causal reasoning*, and a *combination of both*. [22]

To code the method of data collection or analysis in a publication as *quantitative*, we looked in its abstract and method sections for special signal terms like *deductive*, *hypothesis*, *hypothesis-testing*, *survey*, *questionnaire, statistics, regression, correlation, structural equation modeling, confirmatory factor analysis, ANOVA* etc.[8] To code the method of data collection or analysis in a publication as *qualitative*, the expressions we looked for in its abstract and method sections were *inductive / exploratory*, *sampling textual or visual material from the Internet*, *interview*, *observation*, *focus groups*, *content analysis*, *thematic analysis*, *inductive coding*. Our decision for coding methods as quantitative versus qualitative thus rested predominantly on specifications of the methods used and less on design elements (though we also look at the latter; see below). For our decision to code a publication as based on *mixed* methods, both quantitative and qualitative methods needed to occur in the same paper, independent of whether this was a method of data collection or analysis. In addition, we coded publications as resting on mixed methods if their designs were quantitative (e.g., experimental) and data collection/analysis qualitative (e.g., think-aloud protocols). [23]

In order to code the type of causal reasoning expressed in the publications, we inspected the paper more closely with respect to its arguments in its introduction and discussion parts. A *regularity-type of causal reasoning* was indicated for us, if the authors focused on variables and regularities between independent and dependent variables, if they compared outcomes across situations in which causal factors were present versus absent, if they focused on why questions, and produced nomothetic explanations for mediated behavior based on the scientific method. A *subjective meaning-type causal model* was coded when scholars analyzed finer-grained mechanisms of mediated action with an emphasis on subjective reasons, focused on how questions, aimed to understand processes and contexts of mediated action in-depth, along with the subjective meanings and

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8   Notice that some of our signal terms are not directly related to methods, but apply to the overall design of a study. We use these signal terms because of their likelihood to be used in combination with respective methods of data collection/analysis.

interpretations of participants by means of interpretive inquiry. For our decision to code a publication as based on a *mixed* type of causal logic, both regularity- and subjective meaning-type arguments needed to occur in the same paper. Taken together, our decision for coding a publication with respect to its causal arguments rested predominantly on the way a study was designed, less on the methods used. To conclude, we considered the methods used in POISM studies to be independent from causal arguments. Our coding scheme including category definitions is presented in the [Appendix](#). [24]

### 3.2 Purposive sampling

We analyzed published articles in six relevant journals representing POISM communities of practice. We sampled these journals purposefully (see Table 1), aiming for heterogeneity with respect to two selection criteria: 1. communities of practice and 2. impact factor. Within Criterion 1 we distinguished between psychology, communication and cultural/media studies disciplines representing the interdisciplinary nature of POISM scholarship. To decide whether a journal belonged to one community of practice or the other, we looked at the journals' self-definitions presented on journal websites and took into account their primary audiences. As audiences are overlapping across the communities of practice, our decision was not absolute but relative in terms of the most dominant audience addressed: We distinguished between psychologists (interested in human cognition, emotion, and behavior), communication scholars (interested in mediated communication effects), and cultural/media studies researchers (focusing issues of power, culture, and context; see our definitions of the communities of practice above in Section 2.3). [25]

Within Criterion 2, we distinguished between higher and lower impact journals as indicated through their impact factors. A selection of six journals resulted from a combination of these criteria and their sub-categories. We selected two journals with a decidedly *psychological* (*Media Psychology*, *Journal of Media Psychology*), two with a *communication* studies (*Journal of Communication*, *Human Communication Research*), and two with a *cultural/media* studies orientation (*Media, Culture & Society*, *European Journal of Cultural Studies*), aiming for heterogeneity with respect to impact factors (including higher and lower impact journals for each discipline). Across the six journals of choice, we examined research articles that appeared in 2020, hereby focusing specifically on the *recent* state of research in POISM. In all journals we analyzed *all* articles that were published in the given time frame, with the exception of book reviews, editorial introductions, or other types of commentaries. While most of the selected journals have an empirical focus, *Media, Culture & Society* is a primarily *conceptual* journal. Independent of their empirical versus conceptual foci, however, across all journals, we analyzed *empirical* work only, i.e., studies that included data collection and data analysis methods.

| Higher Ranking | Lower Ranking |
|---|---|
| Psychology journals | |
| *Media Psychology* (Impact Factor IF=3.53) Number of research articles published between January-December 2020: 34 (all issues) | *Journal of Media Psychology* (IF=1.63) Number of research articles published between January-December 2020: 20 (all issues) |
| Communication journals | |
| *Journal of Communication* (IF=5.43) Number of research articles published between January-December 2020: 32 (all issues) | *Human Communication Research* (IF=2.74) Number of research articles published between January-December 2020: 16 (all issues) |
| Cultural studies / media studies journals | |
| *Media, Culture, and Society* (IF=3.27) Number of research articles published between January-December 2020: 56 (all issues) | *European Journal of Cultural Studies* (IF=1.60) Number of research articles published between January-December 2020: 43 (all issues) |

Table 1: Purposeful sampling of POISM journals according to predefined criteria [26]

### 3.3 Results

The numbers of research articles published 2020 in each of the six journals of choice are presented in Table 1. In total, *N*=201 research articles were included in our analysis. Table 1 shows that *Media Psychology* (*n*=34), *Journal of Communication* (*n*=32), *European Journal of Cultural Studies* (*n*=43), and *Media, Culture & Society* (*n*=56) comprised larger numbers of publications in 2020, whereas *Journal of Media Psychology* (*n*=20) as well as *Human Communication Research* (*n*=16) contained lower numbers by comparison. [27]

A more fine-grained display of the results of our content analysis is available as an OSF online repository. As part of separate journal-specific data sheets in this repository, the authors of all articles, their titles, data collection/analysis methods, along with the underlying causal reasoning differentiating between a regularity-type and a subjective meaning-type are displayed in separate journal-specific data sheets. [28]

Among the *N*=201 publications presented in the OSF repository across journals, *n*=90 include quantitative research methods, *n*=92 qualitative research methods, and *n*=19 mixed methods, reflecting a preponderance of *monomethods* in POISM in recent research, as compared to mixed methods research. Our findings also

correspond to the causal logics favored in the disciplines underlying POISM research (see Table 2 below): Specifically in the communities with a more social scientific orientation, representing psychology and communication disciplines, we found a larger amount of regularity ($n$=89) than subjective meaning-models of causality ($n$=6), with seven publications comprising both logics. Across the journals selected from cultural and media studies, by contrast, we found a larger amount of subjective meaning- ($n$=86) than regularity models of causality ($n$=1), with 12 publications comprising both logics.

| Journal Type | Journal Title | Regularity-Type of Causality | Subjective Meaning-Type of Causality | Both Types of Causality | Sum for Journal Type |
|---|---|---|---|---|---|
| Psychology and communication | Media Psychology | 33 | 0 | 1 | n=89 regularity-type of causality |
| | Journal of Media Psychology | 20 | 0 | 0 | n=6 subjective meaning-type of causality |
| | Journal of Communication | 20 | 6 | 6 | n=7 both types of causality |
| | Human Communication Research | 16 | 0 | 0 | |
| Cultural and media studies | European Journal of Cultural Studies | 0 | 43 | 0 | n=1 regularity-type of causality |
| | Media, Culture and Society | 1 | 43 | 12 | n=86 subjective meaning-type of causality n=12 both types of causality |

Table 2: Causal logic taken up across journals [29]

As with respect to the choice of methods, our results were also in line with the compartmentalization patterns we discuss above: Across the studies published in journals representing psychology and communication (*Media Psychology, Journal of Media Psychology, Journal of Communication, Human Communication Research*), we found a larger number of quantitative ($n$=89) than qualitative ($n$=6) or mixed methods studies ($n$=7). By contrast, studies published in journals representing cultural studies (*Media, Culture & Society, European Journal of Cultural Studies*) comprised mostly qualitative methods ($n$=86), only one with quantitative methods, and twelve with mixed methods. These numbers are again displayed in in the OSF repository as separate journal-specific sheets. We saw, therefore, that the field of POISM is compartmentalized into essentially quantitative psychology and communication communities of practice and essentially qualitative cultural/media studies communities of practice, with little methodological mixing within or across these. Moreover, the dimensions of our content analysis (causal reasoning and methods), initially conceptualized as independent from each other, empirically turned out to be highly interdependent. [30]

With our content analytical results we thus showed that the research field of POISM is compartmentalized with respect to 1. the types of causal reasoning endorsed by researchers and 2. the methods favored within communities of practice.[9] At the same time, some degree of dilution of the dividing disciplinary lines in communication research and media and cultural studies was also visible: Especially the *Journal of Communication* was characterized by an openness to qualitative methods in *n*=6 articles, and a trend towards the inclusion of mixed approaches in *n*=6 articles. And in *Media, Culture & Society* we saw the highest (though still modest) number of mixed methods studies (*n*=12) compared to all the other journals included in our study. [31]

Our analysis is clearly not without limitations: We are aware that our findings are only a cross-sectional snapshot of the field, one that is not representative of the field more broadly, especially as we drew on both an unusual pandemic-stricken year and a small purposive sample. We also realize that by assigning complex social-scientific studies to simple methods-related categories of a coding scheme we might have underestimated some of the complexity we were seeking to find and glossed over more complex interrelations between methods and causal logic. At the same time, we contend that the numbers we present here are very clear and in support of our earlier arguments. [32]

## 4. An Exemplary POISM Study Using Mixed Methods

We have so far been able to demonstrate two things: 1. the predominance of monomethod studies in POISM research, and 2. the methodological compartmentalization of the communities of practice representing this field—with psychology and communication scholars leaning toward regularity-type causal logic and quantitative methods and cultural and media studies scholars favoring qualitative methods and subjective meaning-type causal logic. We would like to take one further step from here, and demonstrate how researchers could benefit research in this area by applying mixed methods and reducing the existing compartmentalization. We will briefly describe an example study to this end. We chose the study specifically to criticize some of the existing stereotypical associations with quantitative research as based exclusively on regularity-type and qualitative research as based exclusively on subjective meaning-type causal reasoning. The selected study represents an example in which both quantitative and qualitative research strands can be subsumed under the subjective meaning-type causal reasoning. It is a case in which the prototypical regularity-type causal logic is actually missing despite its partly quantitative nature. In this research, quantitative and qualitative strands complement each other towards a more thorough understanding of the social media-enabled acculturation of Korean and Turkish-heritage young individuals in Germany. In other words, this is a study in which we made a conscious attempt to relate the findings of quantitative and qualitative approaches to one another, synthesize them, achieve a "cross-over

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9   We are aware of the difference between the contents of published research and research practice, but use published research here as an approximation of researchers' orientation and practice. We realize that this is not without flaws and that to substantiate (or not) our claims further research is needed.

analysis" (ONWUEGBUZIE & COMBS, 2010, p.411), "an explicit conversation between [...] the quantitative and qualitative components" (PLANO CLARK, 2019, p.108) to reach a "more holistic understanding" (FETTERS & MOLINA-AZORIN, 2017, p.293) as well as a more valid theory of mediated acculturation (KELLE, 2008; ONWUEGBUZIE & JOHNSON, 2006; see our definition of methodological integration in Section 1). The example we chose rests on a different argument for mixing, however: Selecting this study, we advocate that mixing in POISM is not only possible by combining stereotyped quantitative regularity- with qualitative subjective meaning-type reasoning (see Sections 2 and 3). We move on to argue that mixing is also possible within the confines of the causal reasonings we introduced above. In other words, we contend in the following that quantitative research is not exclusively associated with regularity-type causal inferences, but can well be used toward understanding reasons in terms of the subjective meaning-model of causation.[10] [33]

Acculturation is a psychological process by which migrating individuals develop strategies in dealing with cultural difference (BERRY, 1997). According to BERRY, individuals with a migration background tend to struggle with two essential questions: How important are the values of my home country for who I am; and how important are the values of my host country for who I am? A variety of different answers may result from these two questions, motivating individuals to either fully separate their values across home and host, identify with only one of these, identify with both, or identify with neither. Acculturation has been thoroughly researched in the field of psychology (WARD & GEERAERT, 2016; WARD & KENNEDY, 1997; YAĞMUR & VAN DE VIJVER, 2012), though the topic has been transformed with recent technological advances. Clearly, in the digital era cultural identification processes are no longer bound to the physical world. The Internet and social media allow individuals with diverse cultural roots to explore cultural information, express different aspects of their cultural identity, and build and maintain ethnic relationships regardless of geographical distance (BALDASSAR, NEDELCU, MERLA & WILDING, 2016; BUCHER & BONFADELLI, 2007). [34]

By focusing on social media-enabled acculturation, the study is located at the intersections of the three disciplinary pillars of POISM: It is psychological in its focus on acculturation strategies of two migrant groups in Germany (psychology). In the study we examine communication practices unfolding through the use of social media (communication), and situate media use in the context of hegemonic discourses of cultural stereotypes (cultural/media studies). In the following, we illustrate the advantages of combining, and more importantly integrating, quantitative and qualitative methods against this background. [35]

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10 The same argument can certainly be made for qualitative methods: In our view qualitative methods are not exclusively associated with a subjective meaning-type causal model but can well be used toward causal process explanations—for example through comparative case studies or process tracing (SCHNEIDER & ROHLFING, 2013).

### 4.1 Study aims, design, and methods

Employing a cross-cultural comparison, the focus of this study was on the social media use of young adults from two ethnic groups in Germany: Turkish and South Korean. Our aim was to understand how cultural heritage impacts social media use as an extension of the day-to-day realities of multi-cultural young people and their acculturation strategies. The research questions were: 1. *What acculturation patterns do we find among young adults with Turkish or Korean roots?* 2. *How are these enacted on social media?* 3. *In what ways are the acculturation patterns on social media meaningful for young adults with Turkish or Korean roots?* [36]

To answer these research questions, we designed an empirical mixed methods study, using a convergent parallel design (CRESWELL & PLANO CLARK, 2017), that is, quantitative and qualitative data were collected and analyzed independently and subsequently merged during the interpretation phase. Quantitative data were collected by means of an online survey questionnaire, qualitative data by means of in-person focus group discussions. Our aim in the quantitative part was to explore the acculturation patterns expressed by Turkish and Korean youth on social media, while in the qualitative part we delved deeper into the subjective reasons for these acculturation patterns (in the sense of MAYRING's deepening model[11], 2001). In both parts subjective perceptions of identity, cultural belonging, and cultural expression were explored, and both strands thus exemplified subjective meaning-type causal logic with a focus on *reasons*. In addition, we would like to underline that both sections were inherently *causal* at the same time, as we aimed to identify differences and similarities in mediated acculturation patterns *as a result of* cultural heritage. In the quantitative part, we assessed cross-cultural divergence in acculturation preferences; in the qualitative part, we explored cross-cultural divergence in the subjective reasons for these acculturation preferences. [37]

Participants for the online survey and the focus group discussions were recruited following criterion and snowball sampling. Participants had to 1. be between 18 and 35 years, 2. have a Turkish or Korean migration background, meaning that either they themselves migrated to Germany or at least one parent migrated from either Turkey or South Korea to Germany, 3. speak German, and 4. have their main residence in Germany. Participants were recruited through personal contacts, email lists, postings in specific Facebook groups, printed flyers, and were asked to recruit further participants that would meet the given criteria. [38]

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11 *Vertiefungsmodell* in the original; MAYRING (2001, §21).

### 4.2 Results

Using quantitative survey methodology (i.e., scales measuring identification with home and host cultures) in a purposive sample of *N*=80 individuals of 18 to 33 years of age, we could show how cultural heritage impacts acculturation strategies on social media differently in the two groups: Turkish heritage youth used social media for mixing various aspects of their cultural belonging (e.g., Turkish and German language, friendships, and content consumption), displaying a decidedly inclusive acculturation strategy. Korean heritage youth, by contrast, used social media more pronouncedly for expressing a mono-cultural German acculturation desire, seeking to be primarily associated with and assimilated to prototypical German values (see Figure 1). These findings are based on statistical analyses of mean values of the two groups on several acculturation scales. The scales were then aggregated into a home culture and a host culture preference scale ranging from 1 to 5. A cross-section of the two scales and splitting at the scalar midpoint (in this case 3) resulted in four quadrants of acculturation preferences reflecting BERRY's (1997) acculturation model.
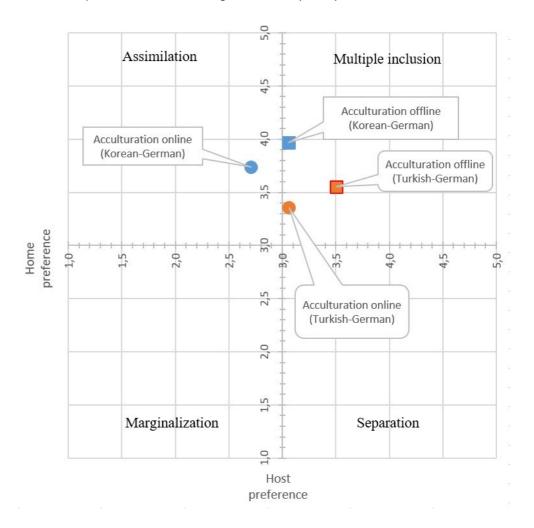


Figure 1: Display of favored acculturation patterns of Korean and Turkish migrant youth in Germany online and offline [39]

Using qualitative focus group methodology and subsequent content analyses of data from a sub-sample of *n*=15 Turkish and *n*=12 Korean participants of ages 20 to 31 (assembled in separate focus groups), we understood in depth the subjective reasons for the acculturation patterns we found: Turkish heritage youth experienced a larger degree of discrimination (and a specifically negative discrimination) in German society, and employed the Internet and social media as an alternative, protective space for Turkish identification—through which Turkish youngsters sought refuge from their otherwise discriminatory and disempowering real lives. As one participant in the focus groups shared:

> "I would say there are always moments when I feel foreign. So, where I think, if I had another name now, I could become Federal President or something. I don't know. Or a constitutional judge, right? Well, that's a thought that just comes to me every now and then [...]." [40]

In the online space it was easier for the participants to blend the two cultures and identities: "It's always a mix. So I use Turkish and German [on social media]. With family it's Turkish, with siblings it's always some Turkish-German mix. Sometimes you have both languages in one sentence, too [laughs]." [41]

Korean heritage youth, by contrast, experienced less discrimination (or positive discrimination) in German society and used the Internet and social media as an extension of their idealized German identities, mirroring on social media the German friendships, networks, and German language they liked to use in their day-to-day realities. One participant from the focus groups explained: "Well somehow ... somehow [I feel] German-Korean, simply. I think somehow, you cannot give a percentage or something, it's anyways a dynamic process. And you continue to develop differently." [42]

Both findings are in line with the said subjective meaning-type causal reasoning we discussed in detail above. More specifically, based on the study we were able to 1. explain social media-based acculturation preferences cross-culturally by means of quantitative methods and 2. situate those in the context of perceived exclusionary/inclusionary discourses in German society by means of qualitative methods. By doing both within a convergent parallel design, it was possible to understand in more depth the subjective reasons behind the culture-dependent acculturation strategies enacted on social media. In other words, while employing quantitative methods allowed us to bring into visibility culture-dependent patterns of acculturation offline and online, using qualitative methods, we were able to see what *caused* them from a subjective point of view in terms of *reasons*. Ultimately, however, both parts were connected to causal logic in favor of participants' perspectives and their subjective meaning-making—a point of view that we believe is too neglected in the current state-of-the-art of POISM research. [43]

In summary, only by integrating the insights from quantitative and qualitative methods, we were able to fully understand the reasons and motivations behind culture-dependent acculturation patterns on social media, thereby contributing to both a *broader* and *deeper* understanding of the process of acculturation patterns

(TASHAKKORI, JOHNSON & TEDDLIE, 2020; TEDDLIE & TASHAKKORI, 2009). The breadth of our study came from the quantitative survey part, allowing us to cross-culturally compare how Turkish and Korean-heritage youth prefer to acculturate through the use of social media. Resulting patterns were eye-opening with respect to the impact of culture, though not sufficient on their own. Only through focus group methodology and subsequent content analysis was it possible to see why the patterns were meaningful in different ways for the two heritage groups. With the mixed methods approach we thus gained a multilayered subjective meaning-type causal understanding of the role of social media in the cultural identification of young adults with diverse cultural roots. [44]

We would like to underline once more that the study exemplifies methodological integration as a goal we consider relevant for POISM studies. We chose the study also to demonstrate that regularity- and subjective meaning-type causal claims are not inherently connected with specific methodological traditions. Instead, each causal logic can be pursued by scholars by means of quantitative *or* qualitative methodology. In the current example, we did not combine the causal logics, but quantitative and qualitative methods within a broader subjective meaning-type perspective. [45]

## 5. Conclusion: A Plea for Mixed Methods Research Designs in POISM

The psychology of the Internet and social media (abbreviated as POISM in the current article) constitutes an ever-growing, vibrant area of research with a focus on the role of online communication in modern life (McQUAIL & DEUZE, 2020; SUNDAR, 2021). According to DEUZE "[w]hat makes media and communication so important to investigate, is that we constitute the world (and our role in it) through them" (2020, p.7). We have seen recently in the context of the COVID-19 pandemic, how the role of mediated communication in our lives is ever more pronounced in times of crisis (ibid.). Given the centrality of Internet media in the day-to-day realities of humans, POISM scholars consider it crucial to study both the *effects* that such media practices have on human behavior and cognition (OLIVER et al., 2020; SUNDAR, 2015; WALTHER et al., 2015) and the *subjective meaning* of such behavior within structures of power, politics, and society (HANSEN & MACHIN, 2019; LINDLOF, 2009). Both *media effects* and *meaning-making* have thus constituted important lines of inquiry for researchers in this field, though the former line has become the mainstream (OLIVER et al., 2020). [46]

In relation to these lines of inquiry, we demonstrated in the current article how scholars in POISM represent mainly *three* disciplines and take up *two* different causal arguments to explain human behavior related to the Internet and social media: While representatives of *psychology* and *communication* prefer to examine their research questions through a largely explanatory, hypothetico-deductive, quantitative *media-effects* tradition, arguing in terms of a *regularity model of causality* as well as *causes* of mediated behavior (PROT & ANDERSON, 2013), scholars of *cultural and media studies* tend to use largely inductive and exploratory designs in conjunction with qualitative methods to

examine in-depth the subjective *reasons* of media users in terms of a *subjective meaning-model of causality* (MAXWELL, 2004, 2012, 2021; McQUAIL & DEUZE, 2020; for a discussion of different types of causal reasoning across quantitative and qualitative research traditions see, for example, GROEBEN et al., 1988; JOHNSON et al., 2019; KELLE, 2008)[12]. In the current article, we started out by giving an overview of the differences between the various types of causal logic conceptually in association with the three disciplines underlying POISM. We then presented a content analysis of pertinent journals in the field, showcasing methodological compartmentalization across the disciplinary pillars in this research area. With our mixed methods example study, we then aimed to present a study in POISM in which we decidedly dissolved some of the existing stereotypical causality associations with quantitative and qualitative methods. [47]

To summarize, in our content analysis we found that in journals representing social-scientific research traditions within POISM such as psychology and communication (*Media Psychology*; *The Journal of Media Psychology*, *Journal of Communication*, *Human Communication Research*) quantitative methods are at the heart of the majority of publications from 2020, in combination with the regularity-type causal logic. By contrast, in the journals representing humanistic cultural/media studies communities in POISM (*Media, Culture & Society*; *European Journal of Cultural Studies*) qualitative methods are at the heart of the majority of publications from 2020, together with a subjective meaning-type causal logic. These findings were much in line with the stereotypical characteristics associated by POISM scholars with quantitative and qualitative research more generally (see, for example, LINDLOF, 2009; YANOVITZKY & GREENE, 2009; see also KUEHN & ROHLFING, 2016, who, using a similar content analytical approach, came to a much less stereotypical conclusion for political science), but the dividing lines between communities of practice using them were to date not as visible. We could show empirically that monomethod studies are considerably more frequent than mixed methods studies in the scholarly works. [48]

By means of our content analysis we could also show the division of POISM research into communities of practice, separated by the very methods and arguments that scholars choose to engage with to develop knowledge, similar to what GOERTZ and MAHONEY (2012) have described as *two* coherent but separate *cultures*. With PLANO CLARK and BADIEE we consider these "communities of practice" (2010, p.283) to be close to what KUHN (2012 [1962]) labeled *paradigm*, and described as a favored research practice in a specific research community that shares a consensus about the questions to be asked and the methods to be used to find answers. MORGAN defined the term *paradigm* as "the consensual set of beliefs and practices that guide a field" (2007, p.49) and advocated examining the "dominant paradigm" (ibid.) of an area of

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12 We would like to stress here, once more, that we are aware that regularity- and subjective meaning-type causal models are by no means the only concepts of causality—process models of causality, for example, are discussed elsewhere (for example, GEORGE & BENNETT, 2005; HEDSTRÖM & SWEDBERG, 1996; RAGIN (2014 [1987]). We deliberately focused narrowly on regularity- and subjective meaning-type causal inference here because we think that these two constitute the most adopted versions of causality in the field of POISM.

inquiry to understand researchers' preferences and preexisting commitments. This is what achieved with our content analysis: We were able to empirically demonstrate an existing favoritism in the scientific community—an ostensible dividing line between a quantitative methods / regularity-type research paradigm on the one hand (represented by the psychology and communication communities of practice) and a qualitative methods / subjective meaning-type research paradigm on the other hand (in media and cultural studies communities of practice). There seems to be very little connection between these paradigms, and scholars representing them apparently do not talk to each other. POISM communities of practice appear heavily fragmented still today in an era in which scholars have embraced mixed methods as a "third methodological paradigm," recognizing their importance for the "most informative, complete, balanced, and useful research results" (JOHNSON et al., 2007, p.129). [49]

From the perspective of mixed methods researchers, the existing streamlined and exclusionary paradigms are associated with biases of the underlying communities that have historically been central in the construction of methodological camps and paradigm wars (BRYMAN, 2008; MAXWELL, 2021). By contrast, scholars in mixed methods such as JOHNSON et al. (2019), KELLE (2008), and MAXWELL (2004, 2012, 2021) have expressed an inclusionary view of methods, most specifically in relation to the question of causality, arguing that both quantitative and qualitative researchers are equally concerned with it, though in slightly different ways (see the regularity versus subjective meaning argument above). They stated correspondingly that the differences between quantitative and qualitative methods in relation to causality are exaggerated and that both methods are good for establishing causality (e.g., HARDING & SEEFELDT, 2013)—quantitative methods for "establishing generalizable associations between causes and effects, qualitative methods [for] uncovering and describing the mechanisms through which effects come about" (p.92). GROEBEN et al. (1988) have spelled this out in detail specifically for the field of psychology and argued that an inner perspective of subjective reasons is missing in this discipline with a behavioristic model of humankind and environmental causes at its center (Section 2.2). [50]

Invoking the earlier notion of a "dominant paradigm" (MORGAN, 2007, p.49), we find that the scholarly efforts in POISM have been furnished by POISM researchers themselves with different positions of power within the field, with psychology and communication research located in a more central and powerful position, and cultural/media studies relegated to a more marginal one. In a variety of scholarly works in this area, cultural and media studies have been evaluated by scholars as a *critique* of the dominant research paradigm, rather than a leading scholarly effort in its own right (HANSEN & MACHIN, 2019; LINDLOF, 2009; MEYEN, 2021; OLIVER et al., 2020; SUNDAR, 2015). This goes back to an existing favoritism in the two lead disciplines of POISM research, psychology and communication, which both have a distinctly quantitative research tradition (MEYEN, 2021; PROT & ANDERSON, 2013; YANOVITZKY & GREENE, 2009). In this, rather than representing "'just' possible choices, chosen to tackle some psychological problems, instead [methods] have become rather entrenched

ideological and epistemological positions" (TODD, NERLICH & McKEOWN, 2004, p.4). In consequence, the methods used in the disciplines have received corresponding evaluations, leading to a preference for quantitative methods and a relegation of qualitative methods to a marginal position. Such partiality, even though "more imagined than real" (p.13), constitutes perhaps one of the strongest reasons why the existing communities of practice within the field of POISM are finding it hard to marry quantitative and qualitative methods with each other. [51]

In this context it is certainly interesting to see that the tendency to make use of mixed methods approaches is especially visible in the margins of POISM[13], i.e., in media and cultural studies scholarship. According to our content analytical findings, mixed methods are taken up here more frequently than in the mainstream pillars psychology and communication. It appears that scholars in the third disciplinary mainstay of POISM have the potential to not only critique media and communication scholarship in terms of critical theory development (see above) but also in terms of methods integration. Psychological scholarship within the field appears to be the most closed community of practice in this regard. We do hope that scholars in the mainstream pillars equally take up the efforts toward methodological integration currently instigated by researchers in the margins. [52]

We claim that POISM scholarship would clearly benefit from heightened efforts toward *methodological integration* and from researchers making more use of mixed methods designs. We argue that human behavior unfolding on the Internet and on social media is caused as much by affordances of the medium and the communication situation in terms of nomothetic *media effects* as it is by *subjective meaning-making* and idiosyncratic interpretations of such behavior. We agree with MAXWELL (2021) that any attempt to explain online behavior without examining subjective interpretations and *reasons*—as is often the case in psychology and communication-oriented scholarship in POISM—is insufficient to understand its *causes*. And any attempt to explain such behavior without the regularity-type media effects perspective—as is often taken up by scholars of cultural/media studies—is bound to be equally unsatisfactory on its own. In their article on causal inferences in the context of mixed methods, JOHNSON et al. have explicitly called for a pluralistic view of causality, one in which different causal inferences are seen as complementary parts of a larger "causal mosaic" (2019, p.144). According to their view "the more viewpoints are appropriately combined and cumulatively met, the greater the evidence of causation" (p.156), and thus the more valid a resulting theory—as it has "survived multiple tests that are emphasized by multiple communities" (p.158). In other words, combining methods (and their respective causal foci) does not only lead to gains in terms of a "more holistic understanding" (FETTERS & MOLINA-AZORIN, 2017, p.293) of the subject matter. It also results in validity gains in the sense of a minimization of validity threats such as alternative explanations and rival hypotheses (JOHNSON et al., 2019; MAXWELL, 2004). We contend that POISM scholars could similarly

13 Using the term "margins" we by no means aim to limit the profound contribution of cultural and media studies, especially for POISM research here. We are using the term in correspondence with how cultural and media studies are framed by POISM scholars themselves (see previous paragraph).

achieve a more holistic as well as valid understanding of their subject matter if they integrated both regularity- and subjective meaning-type inferences into their research (for a similar argument in relation to sociology, see KELLE, 2001; in relation to social science more generally, see KELLE, 2008)—and thus follow the mixed methods trend that is currently most conspicuous in the margins of the field. [53]

At the same time, many empirical research endeavors cannot even be placed into either of these simplified dimensions: For example, ethnography is often embedded into experimental designs with a causal goal in the sense of the regularity model (LESOROGOL, 2005; MAXWELL, BASHOOK & SANDLOW, 1986); advanced statistical methods and mediation analysis, for example, are quantitative methods often used for exploring relationships and building theory (FIEDLER, SCHOTT & MEISER, 2011). The boundaries between quantitative and qualitative research objectives are ever more blurred in these cases, and both quantitative and qualitative approaches are used towards the *same* causal goals (for a variety of different types of causal inferences see JOHNSON et al., 2019). Similarly, in our example study, to discover the *subjective reasons* for mediated acculturation behavior, we used both quantitative and qualitative methods. The insights we obtained from the quantitative (for discovering culture-dependent acculturation preferences online and offline) and the qualitative approach to reasons (for discovering the subjective meaning of these acculturation patterns) in our view represented different causal aspects of acculturation, which would have been glossed over had only one method been used. Only through the *integration* of the insights from the two methodological approaches were we able to arrive at a fuller picture, a "more holistic understanding" (FETTERS & MOLINA-AZORIN, 2017, p.293) and a more valid theory (MAXWELL, 2004) of culture-dependent mediated acculturation patterns of young individuals with a migration background. Our example study was one in which the goals of quantitative and qualitative strands were more alike than different, both associated with subjective meaning-type causality. We chose to present this mixed methods study to dissolve some of the existing biases presented above, typically equating quantitative methods with a regularity- and qualitative methods with a process-type causal logic. [54]

For future studies in POISM, we encourage researchers to use more mixed methods designs, combine the possibilities to understand the causes and reasons of behavior through regularity- and subjective meaning-type causal lenses (MAXWELL, 2021), and reach methodological integration. The currently visible lines often drawn by scholars between quantitative and qualitative research (as we were able to show in our content analysis) could be blurred by means of mixed methods designs (JOHNSON et al., 2007). Scholars could thus draw a fuller and more valid picture of the causes and reasons of human behavior related to the Internet and social media (GUEST, 2013; JOHNSON et al., 2007; TASHAKKORI et al., 2020)—as we have demonstrated in our example study. [55]

Most importantly, however, using mixed methods designs would allow researchers to integrate and interlink methods from quantitative and qualitative

traditions at different stages of the research process (CRESWELL & PLANO CLARK, 2017), thus making use of a large variety of opportunities for mixing: 1. mixing *regularity-type causal reasoning* with *subjective meaning-type causal reasoning*, 2. mixing *quantitative* and *qualitative* methods toward regularity or subjective meaning-type causal inferences. In other words, there are many ways to mix and integrate: We can mix quantitative and qualitative methods and relate regularity-types of approaches with subjective meaning-type of approaches. We can mix quantitative and qualitative approaches and relate to one another two subjective meaning-types of approaches (or two regularity-types of approaches[14]). In our view, POISM researchers seem to have largely missed out on these possibilities, and instead created communities of practice that endorse one-sided views of causality and methods—and, as we have shown, continue to do so still today roughly four decades after the paradigm wars (CRESWELL, 1994), making us question with BRYMAN (2008) whether these wars have ever ended. We think that, perhaps, the easiest way for POISM scholars to carry out more integrative research would be for psychology and communication communities, characterized by a preference for regularity-type arguments, to complement these by making more use of subjective meaning-type approaches (in terms of Option 1 above). Open-ended items on a questionnaire, qualitative interviews, focus groups, and think-aloud strategies would be good methods to integrate into their largely quantitative research. Correspondingly, cultural and media studies scholars, who adopt a predominantly subjective meaning-type causal logic, could carve out of their research regularity-type claims and hypotheses which could be tested with quantitative methods (again, in the sense of Option 1 above). They could, however, also use quantitative methods towards their favored subjective meaning-type argumentation. Our content analysis showed that cultural and media studies scholars have in fact already started to implement these possibilities for mixing. In any case, by mixing POISM scholars would arrive at a more integrative and holistic, valid, and "coherent and consensual" (DEUZE, 2020, p.9) understanding of POISM phenomena. [56]

Scholars in this area would be able to contribute the greatest coherent and consensual, integrated insight to their scholarship if they attempted to answer specific *mixed methods* research questions, and aimed for integration: Do the quantitative correlational results (coming from a survey) generalize to a process theory developed on the basis of qualitative interview data? How do the findings coming from the qualitative part of the study inform or give meaning to the quantitative results and vice versa? To invoke one of our earlier examples (see Section 2.1): In *social identity and deindividuation research*, for example, an area of POISM that is largely based on quantitative regularity arguments (see Section 2.3), scholars have rarely asked how the loss of personal identity and the acquisition of a group identity is perceived, interpreted, and actively connected by media users to their behavior online, using qualitative methods with which they could learn about their inner *reasons*. The integration of such insights coming from qualitative methods could be highly revealing to understand the meaning of existing cause-effect models in social identity and deindividuation research.

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14 For reasons of space we were unable to discuss this option in more detail.

According to PLANO CLARK and BADIEE, many questions are clearly connected with the necessity of having both quantitative and qualitative information to answer, emphasizing "the integrated nature of the study as opposed to breaking questions into separate components" (2010, p.293). In addition, according to MAXWELL (2004), the integration of diverse strategies toward causal inference constitutes a viable avenue to rule out alternative explanations, spurious relationships, i.e., validity threats. As we were able to show based on our current research, POISM scholars currently resist such integrative questions, even though this would help increase the validity of their theories and establish coherence in the field as well as a more consensual understanding of POISM phenomena—something that especially cultural and media studies scholars seem to have already noticed. [57]

Judging from the communities of practice that we have shown to exist mostly independently from each other, using methods separately, and following distinct causal arguments (see the "two cultures" argument in GOERTZ & MAHONEY, 2012, p.1), we believe there is a lot to be done in POISM towards reaching a mixed, diverse, inclusive, and integrated research practice—one that is open to the merits of combining regularity- and subjective meaning-type causal arguments as well as quantitative and qualitative methods. To get there, we claim that several things need to happen: Firstly, POISM researchers need to be made more aware of the differences and complementarity of regularity- and subjective meaning-type causal logic in a way that the merits of each for explaining human behavior on the Internet are brought into visibility. Secondly, researchers' competences and knowledge could be broadened, in order to enable them to make more flexible design choices based on substantive theory assumptions, instead of paradigmatic traditions. Thirdly, the margins of the field—i.e., the field in which mixed methods designs are most visibly used—could be studied more closely by mainstream scholars. Finally, we have been able to show that the communities of practice existing under the POISM umbrella are compartmentalized through the publications that editors accept to publish in pertinent journal outlets. A lot could be changed in the minds of POISM scholars by making these journal outlets more inclusive and diverse in and of themselves. [58]

## Appendix: Coding Scheme[15]

| 1. Data Collection Method | 2. Data Analysis Method | 3. Causal Reasoning |
|---|---|---|
| *Quantitative* methods of data collection defined as research designs and methods that enable standardized and structured data collection of data as numbers<br><br>Example indicators:<br><br>deductive<br><br>hypothesis / hypothesis-testing<br><br>survey<br><br>questionnaire<br><br>… | *Quantitative* methods of data analysis defined as research designs and analysis methods that enable standardized and statistical procedures of analysis of data as numbers<br><br>Example indicators:<br><br>deductive<br><br>hypothesis / hypothesis-testing<br><br>regression<br><br>correlation<br><br>structural equation modeling<br><br>confirmatory factor analysis<br><br>ANOVA<br><br>… | *Regularity-type* of causation defined as describing causality in terms of co-variance between independent and dependent variables<br><br>Example indicators:<br><br>focus on variables<br><br>focus on regularities between independent and dependent variables, such that a change in one leads to a change in the other<br><br>comparison of outcomes across situations in which the alleged causal factor is present versus absent or varies in strength<br><br>why-questions<br><br>general laws, nomothetic explanations, based on the scientific method<br><br>… |

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15 Note: If researchers use qualitative methods of data collection in combination with a quantitative method of data analysis (and *vice versa*), this is also coded as mixed methods research.

| 1. Data Collection Method | 2. Data Analysis Method | 3. Causal Reasoning |
|---|---|---|
| *Qualitative* methods of data collection defined as research designs and methods that enable systematic data collection of data as words, images, or other material in need of interpretation<br><br>Example indicators:<br><br>inductive / exploratory<br><br>sampling textual or visual material from the Internet<br><br>interview<br><br>observation<br><br>focus groups | *Qualitative* methods of data analysis defined as research designs and methods that enable systematic data analysis of data as words, images, or other material in need of interpretation<br><br>Example indicators:<br><br>content analysis<br><br>thematic analysis<br><br>inductive coding | *Subjective meaning-type* of causation defined as finer-grained mechanisms with an emphasis on subjective meanings and beliefs<br><br>Example indicators:<br><br>focus on process and context<br><br>how-questions<br><br>aim to understand subjective meaning and interpretation<br><br>participants' perspectives, interpretive inquiry, subjective meaning-making<br><br>… |
| *Mixed methods in data collection* defined as combination of quantitative and qualitative methods of data collection (see definitions and indicators above) | *Mixed methods in data analysis* defined as combination of quantitative and qualitative methods of data analysis (see definitions and indicators above) | *Mixed type of causal logic* defined as a combination of two perspectives, co-variance of independent and dependent variables and meaning-making as part of the same overarching causal process (see definitions and indicators above) |

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