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A critical review of grounded theory and thematic analysis in qualitative research: A way forward for qualitative Researchers

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Abstract

This study proceeds with a critical view of Grounded Theory (GT) and Thematic Analysis (TA) as possible bases for qualitative research, intending to make their philosophical underpinnings, methodological procedures, practical application, and ongoing relevance clearer. The purpose is to help researchers decide between methods through consideration of the epistemological assumptions, analytic procedures, and usage trends in GT and TA. It looks at the strengths, weaknesses, and practical considerations of each method, while maintaining a view of what gaps remain and giving suggestions for improved practice.

Methodologically, the paper critically synthesizes the literature to trace GTs' and TA's development, use, positioning in epistemology, and their considerations regarding the research method. It examines peer-reviewed documents, including the original texts and more recent developments in constructivist GT and reflexive TA. The main differences are elaborated in terms of data collection, coding, theoretical expectations, and applicability to digital tools and interdisciplinary research.

Findings reveal that GT provides an orderly and rigorous framework for theory generation through the processes of iterative coding, theoretical sampling, and constant comparison. However, the GT approach continues to remain mired in terms of epistemological uncertainty, difficulties in attaining complete theoretical saturation, which demands high methodological skill on the part of the practitioner. TA, in contrast, offers rather straightforward and flexible techniques to pinpoint patterns that could be contrasted across different data sets. TA's reflexive and codebook types are suitable for different analytic needs; however, TA suffers from risks of superficial interpretations, inconsistent theme development, and lack of methodological transparency.

The review contributes to qualitative methodology by embracing the comparative viewpoint to shed light upon the philosophical and procedural discrepancies between GT and TA, thus guiding researchers toward an informed selection of methods. It further highlights the need for improvement in epistemological clarity, digital literacy, and reflexive practice to build more rigorous analyses. The paper proceeds to suggest ways to combine GT and TA in mixed-methods designs as a step toward theoretically and methodologically coherent innovation. In sum, the review acts as a call to responsible methodological pluralism to move qualitative research forward in current times.

Keywords: Grounded Theory; Thematic Analysis; Qualitative Research; Epistemology; Methodological Rigor

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1. Introduction

In the social sciences, qualitative data analysis (QDA) is widely used, but there remains considerable confusion and inconsistency as to which analytic methods are appropriate for various kinds of research. Researchers often struggle to match their epistemological positions, research aims, and analytic objectives with their methodological choices. As a result, two of the most commonly used methods, Grounded Theory (GT) and Thematic Analysis (TA), are often considered interchangeable or chosen without sufficient theoretical support, leading to conceptual confusion and placing analytical rigor into questionable positions (1,2). This situation constitutes a serious and urgent problem in applied arenas wherein clarity and coherence of method are essential for impactful and credible research.

QDA can generally refer to the systematic interpretation of non-numeric data to identify patterns, themes, and meanings that illuminate our understanding of social phenomena (3,4). Historically grounded in interpretivist and constructivist epistemologies, QDA assumes subjectivity and context, co-construction of meaning by both the researcher and the participant (5). Various analytic styles have developed over time, including narrative and discourse analyses, GT, and TA, all set up by other philosophic assumptions and analytical purposes (6).

GT was initially devised by Glaser and Strauss in 1967 to theorize inductively from empirical data. It considers theoretical sampling and constant comparison as paramount, after which it branched off into multiple variants: Classic, Straussian, and Constructivist GT (7). On the contrary, TA has gained popularity due to its flexibility and ease of implementation. It helps researchers to identify and make sense of patterns within qualitative data, but does not confine itself to a particular theoretical perspective. This makes it an attractive option in multidisciplinary and applied fields (6, 8).

Both GT and TA are methodologically important to qualitative inquiry but vary widely in their philosophical underpinnings, analytical methods, and practical uses. Without a clear understanding of their differences, one cannot enter into a methodologically sound research design nor go towards the advancement of the larger qualitative research community (2).

The review critically evaluates GT and TA as preeminent methods in QDA, delving into their epistemological underpinnings, methodological architectures, strengths, weaknesses, and applications. It proceeds further to draw a comparative evaluation, application, key criticisms, and avenues for future methodological innovation and integration.

1.1. Overview of Grounded Theory

Glaser and Strauss introduced Grounded Theory in their influential work, The Discovery of Grounded Theory, as a reaction to the dominance of deductive reasoning in sociology (9, 10). GT, rooted in symbolic interactionism and pragmatism, seeks to construct theory through inductive mechanisms from observable empirical data and processes rather than test preconceived hypotheses in different settings. Its philosophical stance focuses more on social processes and meaning-making toward the development of socially constructed theories responsive to particular contexts (11). Although initially aligned with positivism in the Glaserian sense, the methodology has also embraced the interpretivist and constructivist paradigms. Hence, GT challenges those traditional ontological assumptions by keeping purposes methodological openness, iteration with emergent data collection, and constant comparative analysis, allowing the theory's birth from the data (12, 13). It has become very influential in health, educational, and organizational studies, where theories are developed based on lived experiences. However, its methodological openness and broad epistemological diversity have, at the back of it, stirred up very much worse philosophical debate on the subjectivity of the researcher and the objectivity of the data (14, 15). Grounded theory is a set of formalized steps and procedures that allow systematic theory development based on qualitative data. The fundamentals are theoretical sampling, constant comparative analysis, open and axial coding, memo writing, and theoretical saturation (16,17,9). Initially, data sources highlighting the emerging categories are selected based on purposive or theoretical sampling. Initial coding (usually line-by-line) breaks data into discrete parts, while concepts are generated through comparison of data (18,19). The more focused coding works in tandem with and enriches these concepts, compiling them into higher-level categories. Memoing supports analytic thought, theory building, and reflexivity during the entire process (15).

Theoretical saturation occurs when no new properties or dimensions of a category emerge. However, the notion of saturation has become contentious due to its problematic operationalization (20). Constant comparison occurs in two respects: within and across case analysis to ensure internal coherence and analytic depth. The emergent theory is grounded in fits, workability, relevance, and modifiability; however, the precise meaning of these concepts may alter according to philosophical stance (21). Iterative interaction between data collection and data analysis is of paramount importance within the GT, making it a very dynamic and responsive method. Even though GT has some form of

structured process in qualitative research, the interpretation of data still greatly depends on the researcher, compelling calls for transparency and critical reflexivity (22).

Usually, the three main branches of GT provide its evolution, each representing distinct epistemological orientations and methodological focuses: Classic, Straussian, and Constructivist. Classic Grounded Theory retains more of a positivist character and abstains from any active generation of theories during the process of data analysis (10). It discourages any literature work before coding to prevent contaminating the data analysis. And it places great emphasis on the discovery of a core category that integrates all other concepts. The classic approach favors theoretical sensitivity and searches for theories that "fit" the data versus forcing data into preexisting frameworks (23).

Conversely, the Straussian theory refines more explicit methodological procedures and analytical tools such as axial coding, which brings data back together after open coding to identify causal conditions, contexts, and consequences, and implies a postpositivist role for the active researcher in interpretation. Whereas it offers more analytic clarity and rigor, critics claim the coding paradigms can impose too rigid a categorization scheme onto data (24).

Constructivist GT was developed most notably by (18) within an interpretivist-constructivist paradigm that foregrounds co-construction of meaning by researcher and participant, embraces subjectivity, promotes reflexivity throughout the research process, and investigates multiple realities as opposed to one objective "truth" grounded in participants' narratives and social contexts. Constructivist GT has been embraced in relation to a variety of critical and feminist perspectives to expand GT into more diverse fields where critical theory has traditionally been prominent (25,26).

Each interpretation presents strengths and weaknesses that fuel ongoing methodological debates concerning rigor, epistemological coherence, and analytic transparency. Therefore, to maintain theoretical consistency and methodological integrity, the researcher should carefully select a variant of GT based on his or her ontological stance and research goals.

1.2. Overview of Thematic Analysis

One of the most widespread methods for analyzing qualitative data is Thematic Analysis, and its use is widespread in social and health sciences. The origins of Thematic Analysis go back to broader interpretative traditions of qualitative research, especially with input from psychology, cultural studies, and sociology. While thematic qualities have long been featured in qualitative traditions, TA was formally articulated and consolidated by Braun and Clarke (2006) to elucidate conceptual and procedural ambiguities in how thematic coding is perceived and carried out by researchers. Unlike Grounded Theory, which is explicitly linked to theory generation, TA is not affiliated with any particular epistemological positions and thus presents itself as a flexible tool in realist, constructionist, and critical paradigms (27). The openness has allowed TA to be both a pathway for novice researchers and a rigid analytical tool for the experienced ones. Hence, this very versatility dictates methodological integrity being questioned occasionally, along with the validity of interpretations (28,2).

Braun and Clarke´s (29) six-phase procedure has become the primary touchstone of thematic analysis. Phase I, Familiarization, includes reading and re-reading the data to immerse the researcher with initial ideas. Phase II, generating initial codes, includes systematically coding interesting features across the entire data set. Searching for themes is phase III and comprises collating codes into potential themes. The fourth step-themes are reviewed-where candidate themes are refined and checked concerning the coded extracts and unitary data set. Step V, Defining and Naming Themes, uses detailed analysis to inform a concise definition for each theme and how it fits into the overall story. Finally, producing the report involves the selection of vivid extracts and linking the analysis back to the research question and literature.

The transparency and reflexivity cultivated by such procedural guidelines mean that the approach is exceptionally suitable for novice researchers (30,27). It is important to stress that Braun and Clarke have cautioned that the steps are not linear but recursive and encourage researchers to go back and forth between them as needed. For their clarity and adaptability, and suitability for interviews with both small and large data sets, the framework has been praised by many researchers (31,32). Critics, however, suggest that due to its flexibility, the method can be applied mechanically in superficial analysis without theoretical sensitivity (33,34). Moreover, the framework does not provide guidance on what level of interpretation is required at each stage, resulting in different approaches to its conduct by different investigators (35,36). Still, this six-step approach continues to serve as the foundation for much contemporary qualitative research, with frequent citations and adaptations across disciplines.

Thematic Analysis, in turn, has branched into different interpretive strands, with those most notably being reflexive and codebook. Reflexive Thematic Analysis, as argued by (2), highlights the researcher´s subjectivity and interpretative agency, considering coding as organic and iterative, whereby themes are not seen as passively emerging from the data but the analyst actively constructs them. In contrast, codebook approaches (sometimes called coding reliability or structured TA) involve predefined coding frameworks, multiple coders, and measures of inter-rater reliability, usually associated with positivist paradigms (1,6).

While the reflexive model allows uncovering transparency and deep discussions, it demands a high level of reflexivity and theoretical awareness that some researchers may feel uncomfortable with (28). Despite Codebook TA providing structure and consistency, which is greatly appreciated in team-based research and larger projects, it ensures an extent of constraining interpretive depth and neglecting contextual subtleties (37,6). The separation between these versions is not only methodological but epistemological in nature, constructing the way data is conceptualized and how meaning is ascribed. Meanwhile, they contribute their unique features to the richness of TA methodologies and are more and more commonly adapted to suit various research goals and contexts.

1.3. Strengths and Limitations of Grounded Theory

Many maintain that Grounded Theory (GT) is methodologically systematic and rigorous, thus theoretically generating theories grounded in data rather than applying established frameworks (38,18). Its iterative process of constant comparison, theoretical sampling, and memo writing ensures analytical richness, maintaining an intimate link between data and theory (9,10). It thus stands to enhance the credibility and trustworthiness of findings in areas where extant theory falls short (39). GT, however, allows for the construction of emergent theory, accounting for valuable insight into social processes that are not amenable to deductive methods (38).

Its second strength lies in GT's ability to reveal subtler patterns of meaning embedded within participant narratives to develop theorization in a context-ridden manner linked to participants' lived realities (40). Because of this significance, GT is used in areas like sociology, health studies, and education, where theory should respond to shifting subjective realities.

However, some scholars consider a rigorous method a doubly-edged tool. The theory, techniques, and coding processes require immense training, which technically excludes novice researchers from its application (41,15). Some of the best theorizing ensues when the researcher applies method rigorously. Suppose the researcher deviates from the contrasted method. In that case, there is a high risk of developing superficial, poorly developed theories, which is unfortunate for GT, whose methodological rigor lays the foundation on which qualitative research strongly rests, and sets its essence as being both powerful and demanding.

Theoretical saturation, a core concept of GT, indicates the phase of data collection when no new conceptual insights arise and analytic completeness has been reached. However, in the practical world, this concept has numerous limitations, as many researchers have had difficulty tackling true saturation, mainly when conducting time-constrained or resource-limited studies (6). This has eventually led to premature closure of data collection or overextension of data collection procedures, which in turn has jeopardized theory development (24).

Meanwhile, the coding processes present a considerable challenge. Open, axial, and selective coding are ostensibly designed to form the backbone of theory generation during grounded theory methods, but in practice, the fine line between description and theory is blurred (42,43). For junior researchers, applying these levels may be very confusing unless it is strictly underpinned by rigorous research methodology. Tensions have also existed between inductive openness and imposed structure during axial coding, especially in Straussian GT, creating apprehension that the emergent nature of grounded theory might be compromised (44). Critics assert that the coding does a disservice to the data sets, fragmenting them and causing the researcher to lose narrative coherence and context (45,46). Though GT's constant comparative method serves to compensate for this division of data, at this stage, any segmentation places some distance between the researcher and the participants' holistic accounts. Furthermore, in reality, some researchers mistakenly equate data saturation with having an adequate sample size, which weakens their rationale for ending data collection (47).

Hence, the coding strategies that make GT so powerful also present a major challenge within the methodology. The success of theory production often depends on the researcher's experience, reflexivity, and ability to maintain analytic depth throughout the entire process.

While empirically strong, Grounded Theory often attracts criticism for epistemological inconsistencies. Initially, Glaser and Strauss (10) had argued that theories emerge "objectively" out of the data and not through the influence of a researcher, which appears to be a positivist position. Nevertheless, this position has been contested by many, especially those constructivists who claim that co-construction of meaning inevitably occurs between researchers and the data through their interaction(18).

This absence of an epistemological basis has fueled the methodological drift and the gridlock experienced by many regarding data interpretation and their idea of themselves in the research process (48). For instance, while classic GT assumes realist ontology and objectivist epistemology, constructivist GT embraces relativism and researcher subjectivity. This hampers the comparability of studies that claim to use GT and thereby weakens its cumulative theoretical base (49).

Additionally, GT's obsession with "emergent" theory can occlude that researchers inevitably bring prior knowledge and a system of disciplinary frameworks to their interpretation. While Glaser (10) urged delaying literature reviews to minimize preconceptions, this has been criticized as idealistic and maybe even anti-intellectual. Thus, in practice, research extols the use of literature before and after data collection, which muddies the strict interpretation of what constitutes "true" grounded theory.

This epistemological indistinctness also causes dilemmas in evaluating GT findings; without a unified epistemic view, it remains highly contestable to establish what will be regarded as sufficiently credible, transferable, or theoretically robust(50). Because of this, nowadays, it appears that the approach is both overused and misused, with "grounded theory" being thrown about far too liberally and attached to research studies that would seldom pass through a rigorous methodological process.

2. Thematic Analysis: Strengths and Limitations

Perhaps the most appreciated strength of the thematic analysis (TA) is the adaptability of the method, making it highly adaptable across disciplines and research paradigms. Instead of the fixed way of qualitative methods, TA can be used in a realist or constructivist, or critical framework, depending on which epistemological position the researcher takes (51). It is this methodological flexibility that allows the exploration of explicit and latent meanings within textual data, thereby contributing to a deep understanding of a complex phenomenon (31). Being theoretically independent gives newer researchers the entryway into qualitative analysis without having to grapple with complex philosophical assumptions or with grounded theory's iterative procedures of sampling (27).

TA is flexible to work on all types of data, such as interviews, open-ended questions, or archival materials, which, in turn, makes it particularly useful in applied fields such as education, healthcare, and organizational studies (52,36). The other enticing aspect of TA lies in its simplistic process: anyone can analyze data using the usual package of qualitative data analysis software (e.g., NVivo or MAXQDA). However, some scholars argue that despite the advantages of this flexibility, they often undermine the depth of analysis and coherence if the researchers lack a methodological framework to ground their analytic efforts (52). Nevertheless, this very accessibility of TA has encouraged a wide spectrum of qualitative inquiries, especially among young scholars.

While its flexibility is often praised, issues of reliability and validity persist, especially in cases in which the method is loosely applied. As Finlay (53) and Nowell et al.(27) mentioned, one of the biggest concerns is inconsistency among codes and the development of themes because of the subjective nature of the process of coding and interpretation. The absence of any guidelines implies that researchers could identify very different themes upon analyzing the same data set, creating an issue concerning the reliability of the findings (6). This issue becomes more pronounced in reflexive thematic analysis, where the strategic embrace of researcher subjectivity is embedded in the very process of analysis itself (2), making it impossible for researchers to demonstrate inter-coder reliability or reproducibility. Hence, the validity of a TA is faced when themes are either too shallow to allow clear interpretations or not sufficiently grounded in the data (54). Perhaps against this backdrop, Braun and Clarke (55) suggest that analytical decisions should be made clear through practices like reflexive journaling, as well as through transparent reporting on how themes are developed. However, the inherently flexible nature of TA carries risks of the themes developed suffering from poor coherence or a lack of clarity, especially when too much focus is put on description to the detriment of interpretation (56). Therefore, even though it seems very accessible, it is incumbent on the researcher to lay out grounds in all layers of the analytic process while always ensuring consistency, justification, and transparency on the way to reaching methodological rigor.

There has been a consistent criticism that thematic analysis favors oversimplification. When generic approaches are applied to TA, without concentrating on an economic analysis of the data, usually theming proceeds along an inductive

path of pure description to categorize surface content and not to interpret deeper meaning (51). This risk is especially relevant for studies with lesser degrees of analyst reflexivity or theoretically framed orientation, when, instead of integration, themes come to represent a list of discursive entities (36). Another lack that stands in the way of theoretical growth is that, without explicitly requiring such development of theory or theoretical saturation as in grounded theory, TA puts forth results unable to make an explanatory claim(27).

2.1. Analytical Comparisons of Grounded Theory and Thematic Analysis

Grounded Theory (GT) and Thematic Analysis (TA) differ essentially in their philosophical underpinnings. GT is essentially a method founded in symbolic interactionism and pragmatism, with a classical realist or post-positivist orientation (10,18). Its constructivist version aligns with interpretivism, considering the co-construction of meaning between a researcher and a participant (18). TA has a more flexible philosophy, accommodating either a realist or a constructionist epistemology presupposed on the way a particular researcher applies the method (29,28).

GT aims to develop a theory grounded in data that embodies emergent patterns and interactions, while TA aims at finding, analyzing, and reporting on themes identified in the data without necessarily aiming for theory development (27). GT functions in an iterative relation between data collection and analysis, whereas TA operates more linearly, although reflexive variants permit a recursive process of engaging with data (2). Methodologically, GT tends to be more prescriptive, whereas TA is very flexible and accessible, especially to novice researchers (57). Ontological and epistemological differences, therefore, act as a guide for the choice of analytical techniques, as well as for the depth of interpretation and the generalizability of findings in both approaches.

GT and TA are suitable to different degrees for different research questions and objectives. Grounded Theory favors exploratory studies that aim to develop substantive or formal theory about social processes, interaction, or organizational dynamism (58,15). It is useful when theories are deficient and/or simply absent. GT has, for example, been utilized in a variety of fields such as organizational behavior, health policy, and education to provide grounded explanations for complicated phenomena(43).

TA, conversely, is fit for studies wishing to comprehend the perceptions, meanings, and patterns across the dataset without needing theory-building (6). It is common for applied research, such as health promotion, mental health, and educational equity, to prioritize actionable insights from thematic categories (59,60). Also, given the compatibility of TA with various theoretical perspectives, it fits into cross-cultural, feminist, and critical research environments as well (28). While GT requires iteration and theoretical sensitivity, TA tends to go for more fixed or pre-defined research frameworks, making it more accessible to practitioners, policy researchers, and interdisciplinary scholars.

There is a wide margin between GT and TA on the practical level when comparing their practical merits in the time dimension, expertise required, and relevance of software tools. Grounded Theory tends to consume most of the researcher's time and energy because it uses an iterative and comparative approach, demanding simultaneous data collection and analysis, memos to be written daily, and coding to be continuously done (61,62). It requires much methodological training and theoretical sensitivity, and thus is rarely accessible to the novice researcher (63). Furthermore, the mechanisms of theoretical sampling and reaching saturation imply extended engagement with the field before one can proceed to data analysis, which makes GT demanding regarding resources, time, and data management.

By contrast, TA is less demanding and can be accomplished within shorter timelines, thus preferred for time-bound projects such as dissertations or consultancy research (64). It requires skills of interpretation but does not necessitate the same degree of immersion in methodology as GT does. While, in fact, enhancing reflexivity, transparency, and a certain rigor to TA would certainly be helpful, it is easier to learn and more straightforward to implement, especially for codebook TA, where the coding scheme is mostly pre-defined (65, 2).

Concerning software, both GT and TA may benefit from qualitative data analysis (QDA) tools such as NVivo, ATLAS.ti, or MAXQDA, which assist in organizing codes and tracking analytic progress (65). However, the use of software in GT often closely follows the methodology itself and supports varieties of coding such as open coding, axial coding, and selective coding, while in TA, software is usually optional and less integrated with the analytic rationale (27). TA is very well conducted manually, especially in small-scale studies. While TA presents a considerable option for time-restrained and skill-diverse research teams, GT gives an analytical spread more suitable for more profound grounded-theoretical inquiries.

2.2. Application in Contemporary Research

The adaptability and multi-dimensionality of GT and TA have made these methodologies extensively applied in social sciences, health, and educational research. GT in the social sciences has particularly helped in building mid-range theories to explain social processes, with one such example being Charmaz's (18) constructivist grounded theory to study the identity building of the marginalized (groups). TA, on the other hand, is exercised in finding repeated patterns of meaning in research on social behavior and culture (6). To date, GT has looked into uncovering patient experiences in the management of chronic illnesses, thereby presenting itself as a very useful tool for shaping policy and clinical interventions (15), whereas TA has, in the meantime, been performing well in mental health research and describes the thematic mapping of subjective accounts of trauma and resilience (27). TA in educational research has mostly been used to analyze reflective writings and learner experiences (31), while GT has been used in studying pedagogical approaches and curriculum development (66). These exemplifications reciprocate the ability of the methods to make the complex qualitative data available as useful knowledge in various fields. The selection between the two usually depends on what is to come out of the research: TA usually goes into thematic summaries, while GT instead focuses on generating theories.

The last two decades have seen immense growth in the use of both methods, but there has been an especially strong increase in citation of publications on TA ever since Braun and Clarke sharpened the delineation of the method with a formalized six-phase approach (29). GT remains more or less the backbone of qualitative inquiry, appearing as a cited reference in thousands of dissertations and articles yearly, especially in the sociology and nursing research sectors(15). A bibliometric analysis attributes the popularity of TA to the perception of it being a relatively simple method with a much broader applicability, especially in situations where studies have been done by a wide range of novice researchers and by interdisciplinary scholars. Due to its complexities, GT somehow retains dominance over other disciplines whose phenomena are based on a more rigorous procedure and philosophical level. Comparing the number of citations per year, one finds that TA has overtaken GT within psychology and education disciplines (67). Conversely, as it gains popularity, there are also its detractors about improper use and depletion of the conceptual framework (28). Now journals are even demanding full disclosure in the justification and actual execution of methods, punctuating the qualitative movement toward more rigorous standards. The continued citation of both arguably indicates that these two methods have been in use for several decades in the name of relevance; the usage context of both methods traps a split in theoretical expectations.

Working with digital tools and being conducted in the line of mixed methods research, both GT and TA have evolved, enhancing contemporary relevance. 48 Computer-assisted qualitative data analysis software (CAQDAS), such as NVivo, ATLAS.ti, and MAXQDA, ranks among the most remarkable advances to aid researchers in systematically managing large datasets, refining coding schemes, and visualizing thematic patterns. CAQDAS benefited GT researchers with tracing theoretical coding, strict memo-writing, while TA benefit from organizing rather complex coding hierarchies and supporting ongoing reflective activities. Moreover, both have found their way into mixed methods designs where the qualitative arms of a study provide thick description to enrich characterizations of the phenomena reported on quantitatively. For example, TA has been deployed with surveys in health communication studies to develop descriptions of patients' underlying sentiments, whereas GT has served as a strategy for the qualitative arms of randomized control trials to explain processual dynamics that are not captured quantitatively. Both Digital ethnography and online focus groups have become new sites for these two methods, requiring adjustments to coding strategies to cater to multimodal data types. These integrations indicate or endorse the growing versatility of GT and TA in facing the complex and hybrid data environment.

2.3. Critiques and gaps in the literature

Even in the most methodologically rigorous options like GT and TA, several critical gaps continue to undermine the ways these methodologies are being applied in qualitative research today. First and foremost is the ever-present issue of epistemological ambiguity in GT. While the inception of GT dates back to a kind of glaring realist or positivist approach (10), the blossoming of Straussian and Constructivist alternatives has now allowed for various interpretations, sometimes creating a profusion of incoherence in application and in comparability (18, 49). In certain cases, researchers mix paradigms with spurious adherence to epistemology, thus severely diminishing method integrity and consistency of theory (48).

Second, as far as theoretical saturation is concerned, an inconsistent use poses a methodological gap in GT. Theoretical saturation is supposed to speak to the sufficiency of data; however, it remains vaguely operationalized and often leads to premature closure or overextension of conclusions (20, 24). Most studies tend to claim saturation without convincing systematic arguments, mostly due to being limited in time in academic settings, thereby crippling the rigor of analytic claims (47).

A third gap has to do with the inordinate reliance on coding frameworks, which hardly provide much theoretical sensitivity. In both the GT and TA methodological paradigms, the problem with applying rigid coding frameworks is indeed worse in Straussian GT and codebook TA; such an application sometimes degenerates to mechanical categorizations at the expense of rich conceptualizations (44,6). This is further aggravated by a lack of training and experience in the methodologies in question, especially by novice researchers, who often find it hard to maintain the required reflexivity and analytical depth (41,35).

Chief among them is also the threat of weakening theme development in an adverse scenario in which researchers begin to use TA only as a descriptive tool and not as an interpretive methodology (36, 54). This threat is predominant in application areas where the need to deliver clear-cut outputs can lead to the production of oversimplified or decontextualized themes (52). The very flexibility under which TA operates to the benefit of its accessibility opens it up to misuse, usually with researchers failing to clarify whether they are applying reflexive TA or codebook TA, thereby resulting in analytical ambivalence (51).

Further woes relate to both methods and lie in the way in which people talk about them. Despite calls for reflexive journaling and transparent reporting (27, 6), many published studies shield the public from understanding the analytic process, obscuring the way in which codes and themes were developed and how researcher bias was tackled. This harms the replicability and opens a function doubt on qualitative findings (56).

Secondly, the digital realm, along with Big Data, has gone one past the theoretical discussions about what GT and TA must become. CAQDAS software (NVivo, ATLAS.ti) has found prominent acceptance, although scant research evidence assesses the interference of digital coding in the processes of theoretical saturation, emergent categories, or reflexivity. At least in digital or hybrid research environments, GT finds itself behind in its methodological literature with respect to how to operationalize its principles therein.

Lastly, no rules are given on how to unite GT with TA in mixed-method or interdisciplinary settings. Studies increasingly imply hybrid designs end up borrowing characteristics of both without a clear rationale or epistemological alignment, so-called "method slippage". There is a lack of an agreed-upon way to keep the theoretical rigor of GT or the thematic coherence of TA while integrating it into a larger research framework.

There exist big conceptual, procedural, and practical gaps that cry for clear directions on how to execute the GT and the TA, along with better training and rigorous methodological reporting.

2.4. Way Forward for Qualitative Researchers

To fill the gaps mentioned above and strengthen the application of GTs and TAs, the qualitative researcher must have a methodologically informed, in-paramount-reflexive manner of conducting research. First and foremost, epistemological clarity must be established at the very beginning of the study. Especially for GT, a choice made about classical, Straussian, or constructivist GT needs to align with the researcher's ontological and epistemological commitments (18, 49). Hence, such a stand not only strengthens the theoretical appropriateness of the approach but also helps readers and reviewers to meaningfully assess the reasoning behind the analysis.

Second, the practice of theoretical saturation needs to be strengthened. Scholars should cease viewing saturation as a mere number-based threshold and instead start conceiving of it as a conceptually defined endpoint situated in analytic richness and theoretical completeness (24, 20). Use of saturation grids and data adequacy matrices can further enable transparency in decision-making, particularly where less experienced researchers or projects with time constraints are concerned (47). In TA, though there is no formal demand for saturation, researchers can nevertheless think in terms of thematic completeness and interpretive adequacy when deciding on sufficient data.

To enhance rigor, it is paramount that qualitative training programs provide particular attention to the concept of theoretical sensitivity and to practitioner reflexivity. In GT, it will be necessary to cultivate the ability to recognize emerging conceptual categories without imposing those concepts on the data for the sake of preformed theories (44, 15). For TA practitioners, especially in the reflexive approach, the challenge is to develop skills that interpret the data meaningfully without falling back on shallow topic coding (51).

This should also bring about an improvement in reporting. Journals and institutions should prompt the use of checklists requiring clear presentation of analytic procedures, comprehensive explanations for methodological choices, and details of analyses concerning coding and theme development (27,56). That is to say, a well-defined template such as

COREQ and SRQR should be employed that guarantees a transparent presentation and credibility of the qualitative findings.

The integration of digital programs remains a crucial venue for future development. Examples of well-established tools that assure the process of sorting through enormous amounts of coded data are those offered by NVivo and ATLAS.ti, but the application of their capabilities should not be restricted only to the management of codes. Instead, the researchers may wish to explore ways in which the software's advanced features, such as coding queries, memo linkage, and data visualization, can be harnessed for theoretical development in GT or for elaborating themes in TA. Methodological training must incorporate digital literacy, more so since the use of online data sources and hybrid research settings are already fast becoming commonplace.

Another point of reflection concerns methodology development for interdisciplinary and mixed-method research. In these kinds of settings, research needs to be able to resist the intrusion of the temptation to apply TA and GT in an ad hoc manner; instead, explicit rationales need to be provided for melding the respective methods. Studies should, thereby, explicate how theoretical sampling, coding, and saturation (from GT) correlate with or meaningfully contradict theme development and interpretive analysis (from TA) within the very same research design (68). It might indeed become necessary to develop new hybrid interpretive frameworks, but these must be justified from a theoretical standpoint and grounded in pragmatics.

In this regard, the symbiotic support at the institutional level needs extensive reinforcement, which includes, among others, mentorship, assemblies for collaborative writing, and peer debriefing(6). Collaborative reflection and co-analysis mitigate the risk of researcher bias and deepen interpretation. This interdisciplinary team-based engagement in analytic dialogue will situate researchers in a position to question their own methodological assumptions from a methodological stance and increase the intellectual weight of their research.

Finally, qualitative researchers need to embrace pluralism with some degree of rigor. Both GT and TA can be faithfully adapted to circumstances, but any applied adaptations should be undertaken within a frame of accountable logic and sound implementation. Methodological pluralism, if properly undertaken, enriches inquiry into social complexity and enables innovative approaches within academic and applied arenas (37, 56). Addressing these focal issues, the epistemological alignment, analytic transparency, digital fluency, methodological innovation, and reflexive practice, qualitative researchers ironically enhance justifiable evolution in the modern research landscape for GT and TA.

3. Conclusion

Grounded Theory and Thematic Analysis are two of the most influential qualitative methodologies, each endowed with disparate strengths and presenting different challenges. Grounded Theory can be described as being superior in theory building and having a more thorough exploration of social processes through successive sampling and analysis by comparison; Thematic Analysis focuses upon a more accessible and flexible approach for meaning patterns across different data sets. Nevertheless, both methods are subject to major issues about epistemological clarity, analytical transparency, and methodological discipline. In adjusting to increasingly convoluted, digital, and interdisciplinary contexts, qualitative research needs to refocus on reflexivity, theoretical sensitivity, and digital literacy. The researcher must uphold methodological integrity while innovating so that the application of GT and TA addresses the purpose of her aim and to the larger advantage of enriching scholarly knowledge. Henceforth, it is a pertinent question how addressing these voids will contribute toward enhancing qualitative inquiry's impact and acceptability in all disciplines.

Recommendations

- Clarify Methodological Paradigms: Researchers applying GT or TA should explicitly clarify their epistemological and ontological position so that methodology, analysis, and interpretation are coherent and theoretically justified.
- Invest in Strong Training and Mentorship: Institutions and graduate programs should organize training in qualitative methods, observing theoretical sensitivity, reflexivity, and digital tools for both GT and TA. Adequately seasoned mentors should supervise the novices in applying analytical rigor.
- Transparent Reporting in Strength: Journals should encourage the use of reporting standards, are supervisors or there, such as COREQ or SRQR, for structuring reports to follow from coding, theme generation, to theoretical saturation claims.
- Encourage Design and Use of Digital Tools: Researchers need to discontinue just simple usage of coding software and advance to using features to aid memoing, visualization, and iterative comparison to enhance GT and TA.

- Responsible Innovation in Mixed-Method: When GT and TA are mixed or adapted for interdisciplinary research, researchers will need to articulate clearly the methodological rationales and preserve analytical integrity.
- Foster Reflexivity and Peer Dialogue: Regular analytic debriefings, reflexive journal keeping, and interdisciplinary peer commentary should be encouraged to serve as counterweights to bias and to increase interpretative quality.

Limitations of the Study and Areas of Further Research

Conceptually and literature-wise limited, the present study did not evaluate empirically whether and how researchers actually apply GT and TA in analytic contexts in real time. Systematic reviews and meta-analyses of published GT and TA studies across disciplines constitute a promising area for further research and would allow researchers to evaluate the extent to which researchers follow accepted standards in methodology. Comparative ethnographies of research teams working with these methods may also provide clues about the lived challenges and compromises in analytic practice. Another question concerns how digital technologies and Artificial Intelligence-related applications change the qualitative coding process in GT's iterative logic and TA's stakeholder-theoretical construction.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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