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Knowledge hiding and knowledge hoarding: Using grounded theory for conceptual development

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Abstract

Knowledge hiding and knowledge hoarding define two organizational behaviors that integrate knowledge withholding related phenomena in organizations. Although recent literature presents efforts to conceptually differentiate knowledge hiding and knowledge hoarding, evidence shows that there are emerging gaps resulting from conceptual and empirical inconsistencies between the constructs. This paper addresses the need for theoretical and empirical clarification by developing on the use of Grounded Theory (GT) as a systematic methodology to expand knowledge on both phenomena. This work explores core characteristics and procedures related to GT that can support the pursuit of theoretical refinement behind knowledge hiding and knowledge hoarding as dimensions of knowledge withholding. It presents three philosophical rationales that can support knowledge hiding and knowledge hoarding conceptualization using Classic, Interpretivist and Constructivist GT. Specifically, it provides a conceptual framework that discusses concerns of the researcher, literature review processes, data collection methods, and data coding and analysis strategies that should be considered to ensure quality in GT research. Lastly, it discusses an integration of research using mixed methods GT to address quantitative concerns surrounding GT. This paper contributes to the theoretical and empirical development of knowledge hiding and knowledge hoarding related phenomena by suggesting research conducts and designs to support the usage of GT approaches in the study of both phenomena.

Keywords: Knowledge hiding, knowledge hoarding, grounded theory, research methodology.

Introduction

Knowledge hiding and knowledge hoarding describe two behaviors related to knowledge withholding (Webster et al., 2008) – a larger conceptual label of aggregated behaviors that compromise knowledge flows in organizational environments (Connelly et al., 2012). Despite incorporating a novel string of research in knowledge management literature (Arain et al., 2020), empirical work surrounding both phenomena has been developed around conceptual ambiguity (Silva de Garcia et al., 2020). Recent research presented a conceptual effort to understand the theoretical overlaps surrounding knowledge hiding and knowledge hoarding. Namely, through the identification and categorization of key characteristics that convergence and diverge among the two types of behaviors (Oliveira et al., 2020; Silva de Garcia et al., 2020; Xiao & Cooke, 2018). Adding to conceptual divergences, evidence also shows that a large body of empirical work still adheres to confirmatory, quantitative research designs, with a scarce focus on qualitative methodologies (Fauzi, 2022; Oliveira et al., 2020). Such gap stresses a call to action focused on

the use of alternative methodologies to achieve conceptual refinement of knowledge hiding and knowledge hoarding. The complex social dimensions behind specific knowledge withholding behaviors (Connelly et al., 2019) make room for arguments proposing methodologies that can accommodate categorical complexity. Methodologies such as Grounded Theory (GT), suitable for the understanding of under researched social phenomena (Fendt & Sachs, 2008). This work addresses the gap by presenting different perspectives of GT methodology that can help shape conceptual clarity focused on knowledge hiding and knowledge hoarding research. In particular, GT methodology related to Classic GT (Glaser & Strauss, 1967), Interpretivist GT (Strauss & Corbin, 1990) and Constructivist GT (Charmaz, 2006). Given the complexity and fast-growing nature of GT research across disciplines (Makri & Neely, 2021), this work follows a two-fold approach. First, it aims to provide insight on the evolution of GT as a methodological toolkit (Birks & Mills, 2015). Then, it invites researchers to acknowledge and integrate such methodological choices unto the conceptual refinement of knowledge hiding and knowledge hoarding. To that end, this paper clarifies the role of core principles and divisive perspectives that shape GT research. It presents and discusses different philosophical stances, the role of literature review in theoretical development, and data coding frameworks as defined by the three main GT approaches. Then, it provides insight on the mixed methods philosophy in GT to provide further methodological guidelines and inspire the future integration of both qualitative and quantitative methods in knowledge hiding and knowledge hoarding research. This paper is structured as follows. First, a literature review background discusses the emergence of knowledge hiding and knowledge hoarding in the knowledge management literature, detailing the conceptual overlaps that underline the emergency of this work. The literature review is followed by a conceptual discussion of GT's potential role in contributing to knowledge hiding and knowledge hoarding research gaps. Then, it presents an overview over convergent and divergent views surrounding GT approaches, acknowledging their methodological implications. The discussion on philosophical positions, the role of literature review and coding frameworks follows an integration of possible research outcomes related to the knowledge hiding and knowledge hoarding research context. A last section bridges such reflections, integrating key distinctive features with an emergent stream of GT – that of mixed methods GT - concluding with a proposed research model bridging both quantitative and qualitative methodologies alike

Background

Emerging in the literature with a large conceptual definition, knowledge withholding (Connelly et al., 2012; Webster et al., 2008) encompasses knowledge related behaviors that compromise and limit knowledge flows inside of organizations (Xiao & Cooke, 2018). Knowledge management literature reflects on the novelty of such counterproductive behaviors by comparing specific knowledge withholding behaviors, such as knowledge hiding and knowledge hoarding, as related to knowledge sharing (Anand & Hassan, 2019). Although being emergent foci of research in counterproductive knowledge management behaviors (Silva de Garcia et al., 2020; Xiao & Cooke, 2018), knowledge hiding and knowledge hoarding remain under-researched (Arain et al., 2020; Jasimuddin & Saci, 2022). Conceptual work describes knowledge hiding as a deliberate attempt to hide, retain, or conceal knowledge from someone who requested it (Connelly et al., 2012; 2019).

On the other hand, knowledge hoarding reflects similar attempts of knowledge concealment in circumstances where knowledge is not requested by others (Evans et al., 2015). However, both theoretical approaches and empirical evidence posit different contrasts between knowledge hiding, knowledge hoarding and knowledge sharing – promoting arguments in favor of conceptual inconsistencies (Fauzi, 2022; Silva de Garcia et al., 2020). For example, Connelly and colleagues (2012) argue that knowledge hiding is distinct from knowledge sharing, discussing existing overlaps with other counterproductive organizational behaviors. Other perspectives address knowledge hiding and knowledge hoarding as not the opposite of knowledge sharing (Anand & Hassan, 2019; Oliveira, 2021; Silva de Garcia et al., 2020). However, knowledge hoarding also overlapping characteristics with those attributed to knowledge hiding - being conceptualized both as a deliberate (Ford et al., 2015; Zhao & Xia, 2017) and non-deliberate behavior (Anaza & Nowlin, 2017); and happening both when knowledge is requested (Webster et al., 2008; Zhao & Xia, 2017) and unrequested by others (Connelly et al., 2012; Zhao & Xia, 2017). Arguments towards the theoretical construction of conceptual differences between both forms of knowledge withholding represent recent outputs in knowledge management literature (Fauzi, 2022; Ruparel & Choubisa, 2020; Oliveira et al., 2021; Silva de Garcia et al., 2020; Xiao & Cook, 2018). Such literature reviews attempt to clarify dimensions of operation that further allow a differentiation between both behaviors. By extension, motivation to protect knowledge, intention of concealment, territoriality, and request to share knowledge, are identified as underlying concepts that reduce ambiguity between knowledge hiding and knowledge hoarding (Connelly et al., 2019; Evans et al., 2015; Wang et al. 2019). Nevertheless, despite the inclusion of dimensions, consequences, theories, and influence mechanisms attempting to clarify both knowledge hiding and knowledge hoarding as distinct behaviors, theoretical issues persist. In a recent empirical work addressing the role of management support in minimizing knowledge hiding among high-tech employees, Jasimuddin and Saci (2022) addressed the persisting overlapping perspectives, opting for the use of knowledge hiding and knowledge hoarding interchangeably. Likewise, Fauzi (2022) in a literature review analyzing knowledge hiding behavior in higher education institutions, commented on the conceptual overlap, discussing it as possible current research gap. Given the evidence from literature, two critical arguments arise regarding the theoretical development of knowledge hiding and knowledge hoarding: a) There is an overreliance on the study of concept ambiguity almost exclusively addressed by literature reviews, with a scarcity of conceptual papers addressing both knowledge hiding and knowledge hoarding since their inception in the knowledge management literature, and b) There is a lack of empirical research focused on exploring different levels of analysis, with little contributions surrounding alternative methods of research. Therefore, information that may be overlooked by positivist studies is underexplored. Such argument stresses the need of exploring both concepts under different research designs that allow the use of systematic methodologies.

Expanding on the second argument, evidence shows that qualitative or mixed-methods research designs are scarce when studying knowledge hiding and knowledge hoarding (Fauzi, 2022; Ruparel & Choubisa, 2020; Silva de Garcia et al., 2020; Oliveira et al., 2021; Xiao & Cook, 2018). Such reality comes as a surprise given the consolidated efforts in the integration of thematic maps and multi levels of analysis when discussing knowledge hiding (Ruparel & Choubisa, 2020) and knowledge hoarding (Oliveira et al., 2020; Silva de Garcia, 2020). Previous findings further

address the importance of qualitative research designs to further understand knowledge hiding and hoarding (Oliveira et al., 2021). As proposed by Connelly et al. (2019) "underlying theory suggests may be an interesting interplay between the different dimensions, these can be studied in conjunction with one another" (p. 780), stressing the importance of integrating qualitative research to understand the complexity behind knowledge hiding. The importance of systematic methodologies in the study of knowledge withholding phenomena is discussed in recent literature (Silva de Garcia, 2020; Xiao & Cooke, 2018). Furthermore, critiques behind the higher frequency of behaviors found in self-report surveys versus what is practiced in the workplace (Ruparel & Choubisa, 2020) reinforce such arguments, stressing the need for alternative methods of research. Xiao and Cooke (2018), in a literature review work on knowledge hiding research, address the use of GT as an approach to further clarify existing inconsistences among constructs, aiming to capture nuances that are not possible to analyze following a positivist approach. The GT philosophy is rooted on symbolic interaction, allowing for the generation and development of theoretical refined that shift the logical deduction theory towards a construction based on data (Glaser & Strauss, 1967). Following such rationale, the next sections provide a context of GT methodology and its possible contributions in the refinement of knowledge hiding and knowledge hoarding research. The inclusion of guidelines and paradigms in this paper aim to provide a reflection supporting the theoretical development of future research. Knowledge management researchers who intent on using GT should consider the several methodological concerns, discussed below.

Using Grounded Theory to Advance Knowledge Hiding and Knowledge Hoarding Conceptual Distinction

Initially developed as a methodological treatise emerging from qualitative studies in healthcare (Glaser & Strauss, 1965), GT encompassed a systematic methodological approach to theoretical development using qualitative enquiries (Charmaz & Thornberg, 2021; Glaser & Strauss, 1967). Introduced as an inductive method that allows the development of theory [either discovered (Glaser & Strauss, 1967; Strauss & Corbin, 1990) or constructed (Charmaz, 2000)] by analyzing field data, GT defends a position of theory grounded in data (Alammar et al., 2019). Theory is developed and conceptualized within the scope of data analysis, achieving simple theoretical frameworks for complex problems (Charmaz, 2014; Glaser & Strauss, 1967). Such ontology, mirroring the principles of critical realism and objectivity (Annells, 1997; Levers, 2013), is further stressed under the assumptions of unreliability of previous literature to achieve theory sophistication (Charmaz, 2014; Glaser & Strauss, 1967; Sebastian, 2019). Aimed at discovering basic social processes, the classical view of GT argues that emerging theories must have a fit with the process. Similarly, the theory must also work and be understandable for those engaged in the social process – thus, defining three criteria that approximate the discovered theory to its truth (Levers, 2013). Such reliance on symbolic interactionism reflects pragmatic approaches, where social interactions shape society through shared meaning (Blumer, 1973; Heath & Cowley, 2004). By following Blumer's principles, the earlier development of GT follows an approach articulating both interactionist and naturalistic enquiries, stressing the idea of socially sensible concepts (Glaser & Strauss, 1967). By extension, the idea of social concept shaped the structure of coding

frameworks behind the several schools of GT (Charmaz, 2006; Glaser, 1992; Strauss & Corbin, 1998), being also at the core of several discordances (Charmaz, 2014; Charmaz & Thornberg, 2021). However, such claim of induction surrounding GT methodologies is not without criticism among scholars (Charmaz & Thornberg, 2021; Fendt & Sachs, 2008). Nevertheless, the popularity of GT – be it as either a full range of applications, or as a guideline for coding frameworks in research (Gummeson, 2011; Walsh et al., 2015) – grew into a popular systematic methodology, applied in many fields (Charmaz & Thornberg, 2021; Makri & Neely, 2021; Walsh et al., 2015). GT is suitable to understand categorical complexities behind knowledge hiding and knowledge hoarding, given this methodology application where social interactions are yet poorly understood (Fendt & Sachs, 2008). In the context of knowledge hiding and knowledge hoarding research, arguments towards the development of categorical differences (Oliveira et al., 2020; Silva de Garcia et al., 2020; Xiao & Cooke, 2019) mirror those of categories and high-level concepts behind several GT ontologies (Holton, 2010; Makri & Neely, 2021). Furthermore, a concurrent system demanding a simultaneous data collection and analysis can bring clarification of overlapping social concepts (Dunne, 2011). By allowing research anchored in theoretical sampling of data, a point of saturation will allow the exhaustion of data to meticulously analyze differences between knowledge hiding and knowledge hoarding (Charmaz, 2006; Glaser, 1992; Strauss & Corbin, 1998). In particular, by (Holton, 2010): a) Developing a coding system that allows the comparison of knowledge hiding and knowledge hoarding; b) Allowing the emergence of categories for both knowledge hiding and knowledge hoarding; c) Allowing the comparison of categories between knowledge hiding and knowledge hoarding alike; d) Allowing the comparison of emerging theories with the existing literature, and e) Distinguishing between substantive (local, cultural, situational) or formal (general) theory discovery/construction.

The Choice of Philosophical Position

After the initial development of GT (Glaser & Strauss, 1967), several tensions between Glaser and Strauss led to a division of the methodology, with differences coming from the incompatible views between Glaser's positivist influence and Strauss's strict defense of interpretivism (Glaser, 1992). This friction between them inspired Glaser to continue expanding the initial postpositivist ontology driving GT (hereby called labeled Classic GT). Strauss, in turn, developed a more flexible approach, developing a symbolistic view applied to GT (hereby called labeled Interpretivist GT) in partnership with Juliet Corbin (Strauss & Corbin, 1998). A third division is of note, beginning with the application of constructivism to GT by a student of Glaser and Strauss (Charmaz, 2006). Charmaz's perspective stresses the influence of the researcher as a biased byproduct of the world being researched (Charmaz, 2014). Such pragmatic ontology denies both the distant views of Classic GT (Glaser, 1992) and the action interpretation of Interpretivist GT (Strauss & Corbin, 1998). Charmaz's approach rejects theory discovery in favor of theory construction (Charmaz, 2006), discussing the influence of the researcher in data collection and data analysis. Consequently, approaches on how to define a research problem and research questions should be differently handled accordingly to the three GT perspectives. Table 1 shows epistemological perspectives behind each GT approach.

Despite presenting core differences, the GT approaches share similarities (Alammar et al., 2019; Charmaz & Thornberg, 2021; Sebastian, 2019), showing consensus behind driving principles. Unsurprisingly however, the three GT approaches also diverge in the operationalization of said principles (Kenny & Fourie, 2015). All GT approaches defend the systematization of data collection and analysis that permits theoretical sampling (the evolution of codes and categories unfolded by data). Equally, all perspectives defend the constant comparison of data until achieving theoretical saturation and defend the dichotomy behind substantive and formal theories (Charmaz, 2006; Glaser, 1992; Strauss & Corbin, 1998). However, the differences in the underlying philosophies behind the three GT approaches fuel frictions behind two core principles - one related to *coding frameworks*, and the other regarding the *usage of previous literature* in theory discovery/construction (Alammar et al., 2019; Charmaz, 2006; Charmaz & Thornberg, 2021; Glaser, 1992; Kenny & Fourie, 2015; Strauss & Corbin, 1998). The following sections discuss such differentiating principles, providing guidelines for each approach.

Table 1. *Contrasts between existing challenges in GT approaches (Adapted from Alammar et al., 2019; Sebastian, 2019).*

Research Choices	**Classic GT** (Glaser, 1992)	**Interpretivist GT** (Strauss & Corbin, 1998)	**Constructivist GT** (Charmaz, 2006)
Philosophy	Neutral, selective but theoretical. Soft Positivist	Neutral, axial and integrated. Interpretivist	Biased, fallible, and volatile. Pragmatic, constructivist
Research Problem	Problem emerges during the data collection analysis. Non-specific	Flexible: advisors, experience, literature and pilot projects guide the research problem. Allows specificity in the development of research problems.	There is no prescription. It is a researcher decision. It must be revised during data collection and coding.
Research Question	Questions arise as a result from data analysis, shaping the coding framework.	Similar to classic GT but with more flexibility. Questions need to remain vague – data can act as reference	Influences data collection. Researchers must consider their interactive power in research
Role of the Researcher	Researcher is required to be distant, ensuring neutrality and refusing previous knowledge	Researcher as an engaged actor, actively interpretating gathered data - can rely on previous knowledge	Researcher as pivotal to the world where data is collected. Theory is constructed, not discovered.

Literature Review

The way literature review is conducted has created separated stances between the different philosophical frameworks of GT (Alammar et al., 2019; Kenny & Fourer, 2015). Classic GT defends that conducting a literature review reflecting on pre-existing knowledge can negatively impact research (Charmaz & Thornberg, 2021; Holton & Wash, 2017). Glaser's position,

influenced by the positivist school, follows a rationale that perceives literature review as a constraining process. Therefore, conducting a review of previous knowledge on the phenomenon is to be avoided, since it hinders creativity and halts the discovery of theory from data (Kenny & Fourie, 2015). Nevertheless, Glaser (2005) argues that literature review can be used in final stages of research. However, it should be reviewed outside the field of research to support without affecting the coding frameworks to ensure an original concept (Deering & Williams, 2020). Glaser's strict stance on literature review during GT research demarks a breaking principle from the other two GT approaches. *Interpretivist GT* recognizes that conducting a preliminary literature review can provide context, acting as a secondary source of data (Strauss & Corbin, 1998). Such acknowledgement that research is not blind or aseptic from previous findings (Holton & Walsh, 2017) follows a rationale that relies on literature review as a *support* (Sebastian, 2019). Challenging Glaser's position, Strauss and Corbin (1990) argued that GT should follow an open-minded approach. Thus, conducting a literature review during several stages of research can guide coding frameworks and be of use in bridging substantial theory with formal theory (Kenny & Fourie, 2015). However, Interpretivist GT principles advocate a *partial* instead of *exhaustive* review process (Strauss & Corbin, 1998). A partial review of literature adheres to the critical-realist approach defended by Strauss and Corbin (1998), maintaining a "purist" concern in the achievement of reality. *Constructivist GT*, on the other hand, develops a more pragmatic approach to literature review. Charmaz (2006) argued that the awareness and consultation of pre-existing theories can support the application of techniques leading to theoretical advantages without driving data (Charmaz & Thornberg, 2021; Thornberg & Dunne, 2019). Such approach vouches for principles of "theoretical agnosticism" (Henwood & Pidgeon, 2003). According to theoretical agnosticism, researchers, while invited to use a balanced literature review during all stages of the research process, must follow pre-existing literature with skepticism (Charmaz & Thornberg, 2021; Thornberg & Dunne, 2019). To Charmaz (2006), the balanced approach (followed by a full immersion at the end of the research process) promotes creativity even further, since no research operates in a vacuum. In summary, the evolution guiding different GT perspectives seems to posit a conditional compromise between the three approaches suggesting a limited use of literature review to avoid meddling with the researcher's creativity. In the context of knowledge hiding and knowledge hoarding research, recommendations mirror limited use of pre-existing theory, regardless of the adopted philosophical stance. Albeit divergent, the conditional acceptance of several Classic GT scholars towards the limited use to support coding of data allows for an argument of proximity between the three approaches (Charmaz, 2006) (Figure 1).

Therefore, researchers should: a) Conduct a review of literature only after the final stages of data analysis when research follows a Classic GT approach. The post positivist nature of the approach requires a detachment with the object of research that can be biased by previous knowledge. Appropriate for rationales based on pure theory generation (Glaser, 1992); b) Conduct a partial, non-exhaustive literature review when research follows an Interpretivist GT approach. The researcher shouldn't engage in research with an "empty mind" (Strauss & Corbin, 1990). The vagueness of the research problem becomes specific and previous research can support the coding process, and c) Conduct a literature review *ad libitum* when research follows a Constructivist GT approach (Charmaz, 2006). The decision process is based on the researcher previous knowledge

and influence in research. However, the literature review process must not direct or change the direction of research. The process supports the construction of theory.

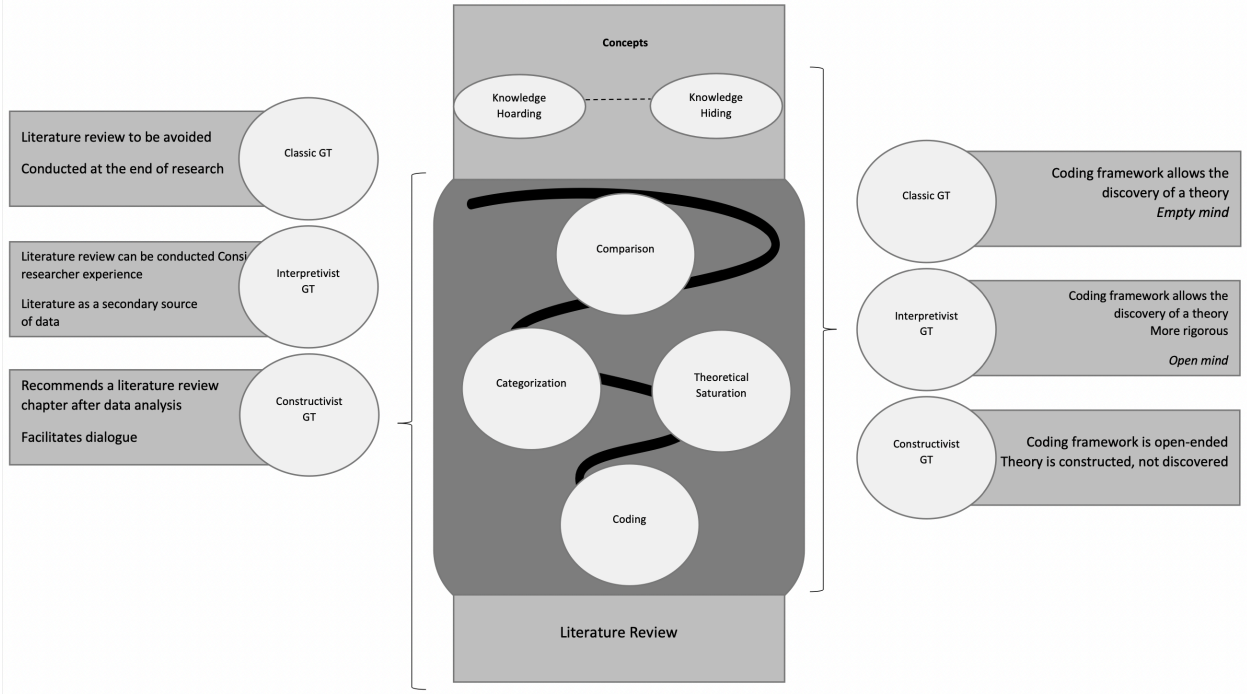

Figure 1. *Literature review and data analysis integration using GT approaches (Adapted from Alammar et al., 2018; Charmaz, 2000; 2006; Kenny & Fourie, 2015; Sebastian, 2019)*

Data Coding and Analysis

Data coding and analysis encompasses a set of frameworks at the heart of several frictions among GT authors (Charmaz & Thornberg, 2021). Coding frameworks are related to levels of codification of data collected during the GT research process (Glaser & Strauss, 1967). Collected data, in turn, is codified and analyzed following three core principles (Holton, 2010). *Theoretical sampling,* in which comparison of data conducts to the emergence of theory and the need for more data. *Theoretical saturation,* an analysis plateau that occurs when no new data comes from the analysis. *Constant comparison methodology*, describing conceptual labels behind the coding of data. Therefore, data is coded in emerging categories and core categories that conduct the discovery of theory (Holton, 2010). According to GT principles, the need for these three mechanisms in coding frameworks is crucial to clarify results and guide a research process driven and grounded on data (Glaser, 2005). To ensure the required level of richness of analysis, GT relies in data collection methods focused on open-ended information, aiming for an in-depth scope (Holton, 2010). Therefore, GT relies heavily on the combination of semi-structured interviews and document analysis (Walsh et al., 2015), acting on layers upon layers of data (Makri & Neely, 2021). Despite sharing similar tenets regarding the mechanisms behind coding frameworks, the *procedures* in which the coding occurs are a core divergence between the three GT approaches (Walsh et al., 2015). They are summarized below. Glaser's original coding procedure suffered some refinements

over the course of the years (Kenny & Fourie, 2015). Regardless of development and overall retouching to his approach, two core coding stages remain at the center of Classic GT's – substantive coding and theoretical coding (Holton, 2010). Driven by principles of theory discovery, Classic GT relies on a flexible process focused on the exemption of researcher influence (Glaser, 2005). Substantive coding reflects stage with a line-by-line codification of data. Then, codes are grouped in concepts that will represent categories. Codes and categories are to be constantly compared until a core category arises (Holton, 2010). Then, the core category is selectively coded with the comparison of selective information that aims to delimit and isolate the category in a higher degree of abstraction – that of a substantive concept (Holton, 2010; Kenny & Fourie, 2015). The last stage, designated theoretical coding, relies on the analysis of relationships between substantive concepts. A process that will try to explain a latent behavior (Holton, 2010). The flowing paragraphs and Figures 2, 3 and 4 provide overviews of the different GT's coding frameworks.

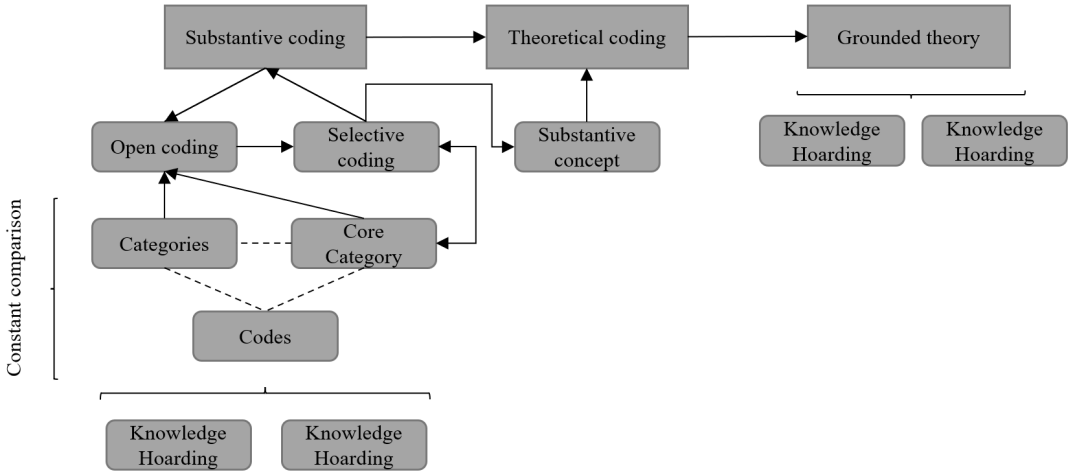

Figure 2. *Coding framework of Classic GT (Adapted from Holton, 2010)*

Introducing a sharp contrast, Strauss' criticism of Classic GT framework is observable in his redefinition of Interpretivist GT coding framework. More complex, it relies on three coding stages, with a strict paradigm and a conditional matrix supporting analysis decision (Strauss & Corbin, 1990). Open coding follows a similar approach to that of Classic GT (Kenny & Fourie, 2015). However, Interpretivist GT allows for the creation of sub-categories with higher abstraction. To achieve an initial hierarchy of categories, Strauss and Corbin (1990) defend the coding of categories considering their unique properties and their dimensions (with the latter measuring aspects such as degree, frequency, intensity, duration, etc.). Axial coding follows a paradigm model, a five sub-category labeling system aimed at studying relationships between emerging categories in a systematic manner (Strauss & Corbin, 1990). Such relationship coding will introduce a higher degree of abstraction supporting the emergence of a core category. Once the core category is identified, a selective coding stage will clarify the nature of the phenomena in a conceptual fashion. Therefore, a descriptive overview is provided and integrated in a hierarchy with the support of the paradigm model. Properties and dimensions of the core category should be

reassessed. The emergent theory coming from the selective coding is again related with existing data, and categories that were missing refinement are further coded to ensure conceptual density (Strauss & Corbin, 1990). Such strict breakdown in the coding framework allows for a cycle of rebuilt that can further co-substantiate the discovery of theory (Sebastian, 2019). At this point, a fourth level of analysis takes place, clarifying the extension of the conceptual subject – using a conditional matrix. The conditional matrix should support the research in understanding the actions, interactions, levels (individual versus collective; national versus international, etc.) providing enlightenment over the discovery of a substantial or formal theory (Strauss & Corbin, 1990).

Described as extreme or even destructive (Glaser, 1992), Strauss' coding framework is arguably specific and dense. Both Strauss and Corbin insisted that the system can act as a control to reduce researcher bias. Similarly, they defended that the interwoven pattern coming from the coding schema reflect accuracy in theory discovery (Strauss & Corbin, 1990). However, it should be noted that subsequent works published by Strauss and Corbin created attempts at relaxing the coding framework they initially devised, suggesting more applied flexibly that grew to be more aligned with a constructivist approach (Kenny & Fourie, 2015; Sebastian, 2019). Assuming a framework aligned to that of Classic GT, the Constructivist GT coding procedures reflect a flexible more malleable nature (Charmaz, 2000; 2006). For Charmaz, the researcher interpretative influence and role as an engaged actor in the study of the social process contributes to the reconfiguration of the coding framework. The first stage is defined as open, or line-by-line coding. However, the Classic GT coding process is challenged in the context of constructivism, where theoretical cues can overcome themes (Charmaz, 2006; Charmaz & Thornberg, 2021). Feelings, interpretations, tones, verbal cues become an immersive part of the coding process, reflecting a relationship between researcher and participant – also known as *in vivo* coding (Charmaz, 2006). Then, initial codification is refocused in a second stage using all three core principles driving GT research – memo writing, theoretical sampling, and theoretical saturation.

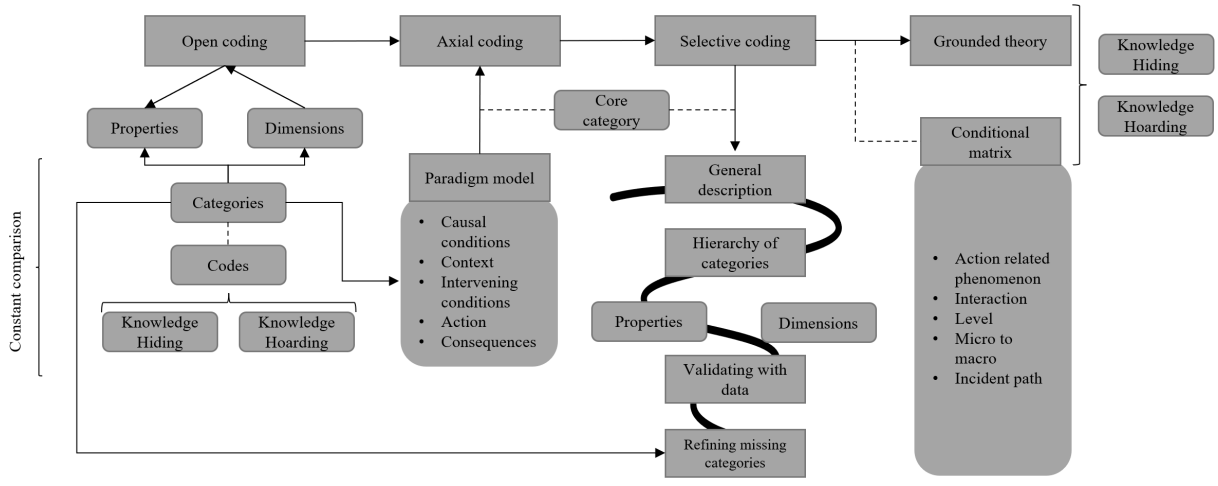

Figure 3. *Coding framework of Interpretivist GT (Adapted from Strauss & Corbin, 1990)*

The paradigms here discussed display three possible courses of action when engaging in research using GT. Such views serve to provide guidelines that address the potential of data coding to achieve conceptual clarity. As discussed by Kenny and Fourie (2015), "there is freedom to blur the boundaries between Classic, Straussian or Constructivist GT" (p. 1286). Translating such adherence to creativity and flexibility without compromising methodological integrity, this work also reflects on the usage of the three approaches to conceptually clarify differences between knowledge hiding and knowledge hoarding. Knowledge hiding and knowledge hoarding can be linked to all philosophical stances here discussed – from Classic GT post-positivism to Constructivist GT pragmatism. However, each of the three approaches is apt to achieve distinctive theoretical contributions given their methodological characteristics.

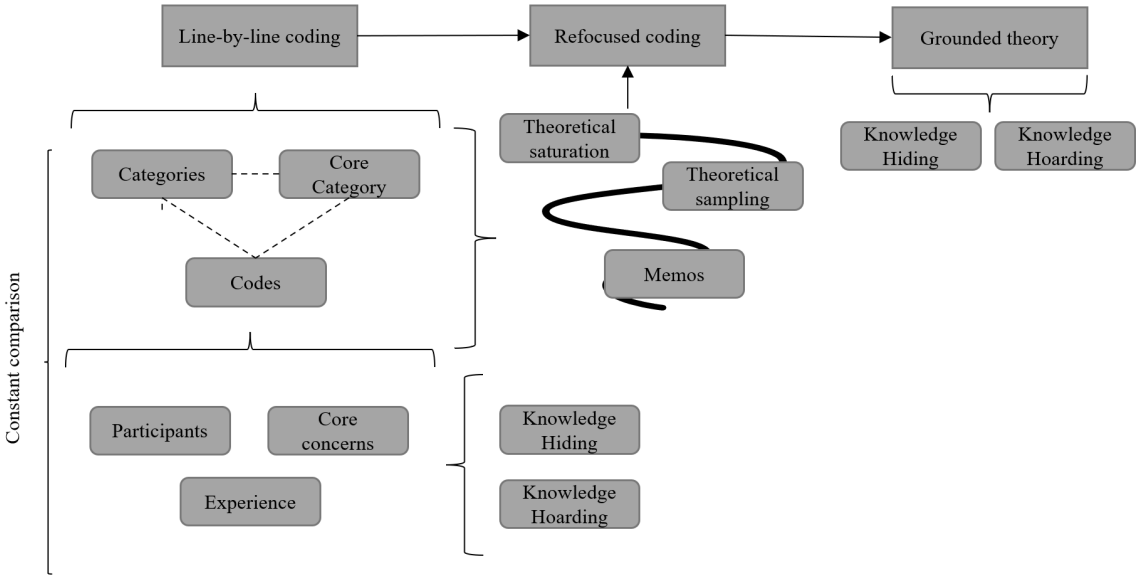

Figure 4. *Coding framework of Constructivist GT (Adapted from Charmaz, 2006)*

In fact, some recent empirical works aiming at theoretical modeling that supports knowledge hiding behavior follow such flexibility in coding (Choudhary & Mishra, 2021; Jha & Varkkey, 2018; Liu et al., 2020). Jha and Varkkey (2018), in their study focused on understanding conditions leading to knowledge hiding in pharmaceutical companies, follow a coding protocol using the three approaches. In the study, data coming from interviews was initially coded following Classic GT principles and further refined through axial coding (Interpretivist GT), while considering applying a line-by-line coding focus (Constructivist GT). Main findings include emerging categories stressing antecedents and the discussion of a different cognitive rationale driving knowledge hiding – that of counterquestioning. The coding strategy grounded on flexibility accommodated the empirical verification and the creation of substantive theory (Holton, 2010), allowed for a scope specific approach (Strauss & Corbin, 1990), and permitted the conceptualization of knowledge hiding as a volatile and interpreted phenomenon (Charmaz, 2006). Contrastingly, Liu et al. (2020) follow a strict Interpretivist GT coding framework to understand how knowledge hiding behaviors interact with knowledge sharing, given the authors' expected

theoretical contributions surrounding verification corroborated by multiple perspectives (Strauss & Corbin, 1990). Therefore, researchers are advised to consider different GT coding approaches to achieve distinctive conceptual development behind knowledge hiding and knowledge hoarding. Expanding on the possible theoretical contributions that come with the adherence of a specific GT approach, Table 2 discusses the suitability of each approach in attaining specific conceptual outcomes behind knowledge hiding and knowledge hoarding.

Table 2. *Comparison of Coding Frameworks in GT Approaches*

Approach/ Coding stages	**First stage**	**Second stage**	**Third Stage**	**Theoretical contributions**
Classic GT	**Substantive coding** - Uses a Constant Comparative Method - Relies on a core category system - Data dependent and focused - Becomes increasingly abstract		**Theoretical coding** - Categories merged into a substantive theory - Categories are refitted and refined - Integration of emerging core categories	- Conceptualizing KH and KHO is a first step, followed by empirical verification - Allows the creation of substantive theories surrounding KH and KHO - Verification requires a quantitative approach
Interpretivist GT	**Open coding** - Relies on analytic techniques - Single occurrences are coded - Embraces all data - Uses a Constant Comparative Method - Fracture	**Axial coding** - Categories relationships with other categories - Creation of subcategories - Follows a coding paradigm model grounded on strict procedures - Relate and integrate	**Selective coding** - Similar to axial coding, but with higher abstraction - Select and integrate - Conditional Matrix	- Assessing theories and models surrounding KH and KHO as central to research - KH and KHO as simplistic processes, changeable, and scope-specific - Verification happens through multiple perspectives using the same data
Constructivist GT	**Line-by-line coding** - Addresses richness of data from interviews - Accounts for individual experience and perspective - Process stops upon coalescence of codes and the assessment of their importance		**Focused coding** - Most important codes considered focus codes - Analytic process that retains strong foundation of data - Streamlines next data collection	- Conceptualizing KH and KHO as an interpreted construction - Addresses researcher influence and volatile nature of phenomena -Theory as a representation

Note: *KH – Knowledge Hiding; KHO – Knowledge Hoarding*

Model Integration: The Mixed-Methods Argument

The systematic nature of processes and frameworks developed to achieve theoretical refinement using GT led to distinctive approaches trying to convey the best research design. Indeed, the growing complexity fueled by divisive views of GT contributed to a vast array of changes that

shaped qualitative research (Cho & Lee, 2014). As a consequence, GT is currently one of the leading qualitative research philosophies across disciplines (Makri & Neely, 2021). As discussed, the strict versus flexible approaches behind codification frameworks can contribute to theory in different ways. However, such degree of freedom and creativity defended by the GT core principles is prone to criticism. The growth of qualitative research and conflicting views surrounding the best fit led to concerns on the unstructured nature and the subjectivity of GT. As an example, Makri and Neely (2021) discussed criticism aimed at GT by commenting on the low (or incorrectly labelled) number of GT studies used in management research. Consequently, several arguments began to take shape in management literature, providing solutions to address methodological concerns related to GT. Examples of solutions to improve GT robustness include the defense of systematic literature reviews prior to research (Tranfield et al., 2003); the detailing of research protocols; and the integration of mixed methods research (Charmaz et al. 2014; Johnson et al., 2010). The last solution, however, based on the combination of quantitative and qualitative methodologies, is not a novelty in GT literature. In fact, one could argue that a mixed methods GT approach is a natural translation of GT's epistemological roots on pragmatism (Guetterman et al., 2017). The fundamental qualitative essence of GT was already challenged by the authors of the three GT approaches (Birks & Mills, 2015), regaining traction with the rise of the mixed methods movement (Guetterman et al., 2017; Johnson & Walsh, 2019). All three approaches encouraged the discussion behind the combination of methodologies as a possibility to revolutionize the qualitative inquiry in GT research (Walsh, 2015). According to Johnson and Walsh (2019), five key features should be retained in the development of mixed-methods GT: a) Mixed methods GT extends the traditional inductive logic. Acceptable logics include induction, deduction, abduction, critical research, etc., as possible ways to achieve truth; b) It accepts both the formal level and the substantial level of theory defended by traditional GT. Mixed methods GT is aligned with a stance defending multi-levels of reality; c) Quantitative research global causality can be used to focus on the formal, general level of theory, whereas qualitative singular causation can promote substantive theory. Their interrelation provides a larger level of informative causal theory; d) It allows both exploratory (traditional GT) and confirmatory approaches to the phenomena, and e) Mixing methodologies further encourages research creativity (e.g. survey followed by an ethnographic study).

Johnson and Walsh's (2019) groundbreaking perspective still retains and encourages the core principles of GT in the mixed methods GT philosophy. Data analysis is maximized by allowing both the use of quantitative and qualitative methodologies to achieve constant comparative analysis in a combined fashion, with flexibility regarding concurrent or sequential data collection. Mixed-methods GT is still scarce (Gutterman et al., 2017), with recent research efforts pushing forward Johnson's (2010) initial frameworks unto the reality of theoretical modelling following an exploratory - confirmatory stance (Shim et al., 2020). By extension, theory discovery using mixed-methods GT approach can provide groundworks for knowledge hiding and knowledge hoarding conceptual development by combining core GT principles (data analysis, constant comparative analysis, theoretical sampling) with research stances (confirmatory, descriptive, exploratory). Figure 5 offers a research design proposal inspired by Johnson's (2010) principles, merging mixed methods GT literature (Forrest et al., 2013; Renaud et al., 2016; Shim et al., 2020) that can be used for the conceptual development of knowledge hiding and knowledge hoarding.

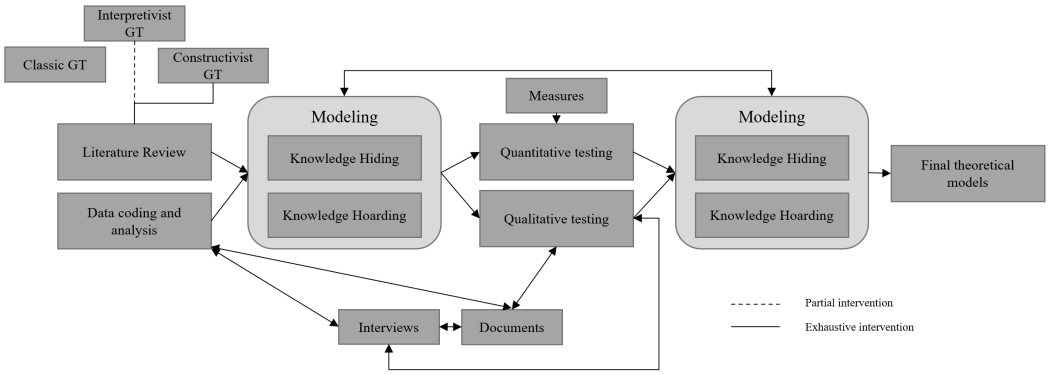

Figure 5. *Research design proposal integrating mixed-methods GT*

Conclusion

This work provides an overview of guidelines driving GT research that can benefit the theoretical and empirical development of knowledge hiding and knowledge hoarding. Encapsulating or resuming the contributions made possible by GT development in the context of a specific research topic is a complex endeavor. The plurality and divergence of opinions coming from the authors behind the three GT approaches inspire multiple avenues of research. Yet, such future research must be conceived with caution. The plurality and freedom behind GT's guiding principles grants possibilities towards the clarification of knowledge hiding and knowledge hoarding conceptual problems. However, the vast range of choices and symbolistic interactions made possible by GT posit methodological packages (Birks & Mills, 2015) that can be challenging to the untrained researcher. In attempting to structure such complexity, this work provides a blueprint in which research can grow upon. It invites researchers to critically assess how GT's related methodologies can tackle inconsistencies that persist in the study of knowledge hiding and knowledge hoarding. The suggested approaches, illustrated by examples used in research aim to synthetize an initial effort that can enrich future theory grounded on data in a cohesive manner. Therefore, this paper proposes a situational map that can used in a wide array of scenarios aimed at further clarifying the similarities and gaps between knowledge hiding and knowledge hoarding. Regardless of the choice of philosophy, researchers should follow a GT research process that respects a preparation stage, an implementation stage, and a dissemination stage (Birks & Mills, 2015). Only through the correct planification will researchers be capable of enter the research field and correctly apply the systematic GT methodologies. In turn, the implementation can contribute to a theoretical model that defines its substantial or formal contribution to research. Figure 6 proposes a summary four-stage guide to drive research focused on knowledge hiding and knowledge hoarding based on converging points driving GT principles. The discussed coding frameworks in this work also present research designs using GT that illustrate knowledge hiding research guided by different frameworks. Arguments tailored towards the flexibility of coding strategies incorporating suitable theoretical outcomes exist, driving knowledge hiding research. However, no instances were found where GT was used for the conceptual development of knowledge hoarding, or to conceptually

differentiate knowledge hiding and knowledge hoarding. Future research can use several of the guidelines provided by this paper in the achievement of theoretical development aimed at closing such gaps. Similarly, the paper also invites researchers to critically assess recent empirical works focused on knowledge hiding (Choudhary & Mishra, 2021; Jha & Varkkey, 2018; Liu et al., 2020) that reflect many of the guidelines provided by this work. Similarly, future research should also consider the integrated possibilities of GT with other compatible epistemologies, such as the pragmatic view driving mixed-methods research. The integration of quantitative and qualitative approaches to triangulate, corroborate and expand further the conceptual development and empirical testing of models resulting from GT. By extension, it permits robustness of research design and counters the (still) pervasive qualitative research bias.

The recommendations of the current work summarize philosophical positions that are yet to be consensual. The paper focuses on three of the existing GT approaches are here discussed (Classic, Interpretivist and Constructivist), given their communality and comparison in the development of scientific research literature. The discussion of such views is then compared to that of their own methodological weaknesses, presenting alternatives in favor of mixed methods to integrate quantitative designs in GT. Therefore, the coverage of only three of the most discussed GT approaches is a limitation of this work. Researchers should also be aware of the development of recent GT approaches that could further shape their work – such as Feminist GT (Plummer & Young, 2010). Nevertheless, this work also conveys core principles that can act as guidelines for future research, underpinning the plurality of GT as a catalyst to achieve theoretical refinement on knowledge hiding and knowledge hoarding. The outline provided by this work contributes to support research decisions through simplified, but determinately divisive, aspects of complex ontological approaches. GT demands an exhaustive methodological toolkit aimed at theoretical discovery and refinement. As discussed by Alammar et al. (2019), GT provides breathing room to work with ambiguity and confusion. Such characteristics suggest the development of nuanced perspectives that can only be molded by questioning and experiencing. Continuously questioning and answering contributes to theory by accepting fits or presenting challenges using GT. A characteristic that, in turn, presents a core need to clarify knowledge hiding and knowledge hoarding as novel concepts in knowledge management literature.

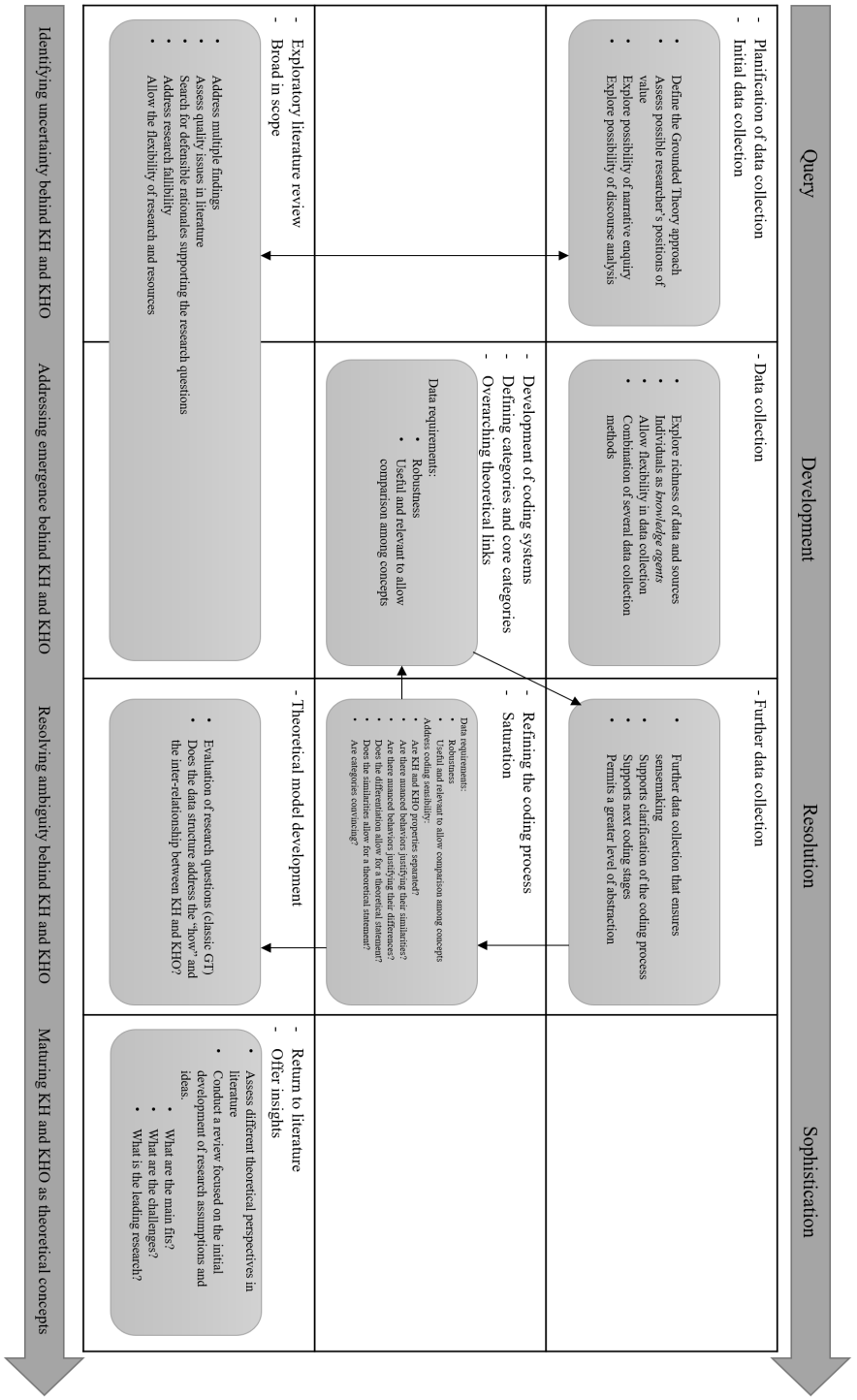

Figure 5. *Proposed Research Stages Using GT*

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