Narrativization in Information Systems Development

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ABSTRACT

People see the world and convey their perception of it with narratives. In an information system context, stories are told and collected when the systems are developed. Requirements elicitation is largely dependent on communication between systems designers and users. Thus, stories have a significant impact on conceptualizing future users' needs. This paper presents a literature review on how stories and narratives have been considered in central IS literature. Narrative-theoretical parameters are used as a lens to analyze the literature. This shows that explicit discussion is non-existent, and the characteristics are considered partially. The result is a biased and narrow understanding of the informants' needs and wishes. This may be significant in the requirements because narratives are not as simple a form of communication as is usually assumed. It is proposed that better understanding narratives would equip systems analysts with an in-depth understanding about the nuances inherent in communication when communicating with users.

KEYWORDS

Analyst, Interaction, Literature Review, Narrative Analysis, Narratives, Requirements Elicitation, Stories, User

INTRODUCTION

Stories and narratives are a natural form of human interpretation and communication (Brown et al., 2008; Fisher, 1984; Raatikainen, 2023; Weick et al., 2005). Stories and narratives also appear in an information systems development (ISD) context where different techniques and methodologies are used to elicit users' requirements, needs, and wishes (Alvarez & Urla, 2002). Our concern arises from a potential gap in the field's comprehensive understanding of the fundamental nature of these narratives.

Most elicitation methods rely on two-way verbal communication between systems analysts and users (Amna & Poels, 2022; Ferrari et al., 2022; Ramesh et al., 2010). Typically, requirements elicitation processes provoke competing interpretations about the system and the organisational context in which it is developed, implemented, and intended to be used (Davidson, 2002; Iivari et al., 2010). This makes requirements elicitation a vital yet problematic activity, as the failures often result from

its difficulties (Bano et al., 2019; Beimel & Kedmi-Shahar, 2019; Coughlan & Macredie, 2002; Poels et al., 2013; Siau et al. 2022). Our concern lies in the possibility that the lack of a comprehensive understanding of narratives could contribute to these challenges.

Fundamentally, requirements elicitation is dependent on human communication and knowledge transfer (Appan & Browne, 2012; Bano et al., 2019; Holmström & Sawyer, 2011; Palomeres et al., 2022; Oran et al., 2021; Rosenkranz et al., 2014). Developers try to understand the context and users' needs so that the system fits the situation (Kirsch & Haney, 2006; Poels et al., 2013). However, this knowledge transfer is challenging. For instance, work context descriptions are partly tacit and ambiguous (Alvarez & Urla, 2002; Ferrari et al., 2016); therefore, they are not easily transferred into concrete development efforts. In addition, users have difficulties processing information from their surroundings and communicating it to developers (Appan & Browne, 2010; Thew & Sutcliffe, 2017). Thus, system developers cannot fully absorb what users convey. Quite often, the context is simplified or distorted, resulting in unsatisfactory results (Holmström & Sawyer, 2011; Oran et al., 2021; Poels et al., 2013; Saghafi & Wand, 2020; Urquhart, 2001). We argue that limited understanding of the role and influence of narratives are contributing factors in this situation.

The narrative concept has been adopted, for example, in organisational research (Dailey & Browning, 2014; Geiger & Antonacopoulou, 2009; Sahni & Sinha, 2016), where organisations are viewed as *storytelling systems* in which the narratives construct an organisation's social reality (Boje, 1991; Geiger & Antonacopoulou, 2009). However, narratives have received only little attention in ISD research (Avison et al., 2017; Sahni & Sinha, 2016). Narratives have been utilised, for instance, as a method for analysing information system (IS) projects on a general level (Avison et al., 2017; Hekkala et al., 2018). While this has educated the IS field on the insightfulness of the narratives, it offers almost no ideas for their role and influence in ISD practice. Rather, when looking into more specific ISD activities, such as requirements elicitation, narratives seem to be taken as messy or uncodeable data (Alvarez & Urla, 2002). The narratives from numerous users are then aggregated and, for example, use scenarios, use cases and generic requirements are constructed. These narratives are the predecessors of use scenarios and use cases. However, it is rather concerning that practitioners lack knowledge to critically analyse these narratives. After all, the narrative theoretical discussion appears to be relatively limited in the IS literature (Raatikainen, 2023). As a result, narratives in ISD practice can frequently lead to overly generalized, abstract, or even distorted interpretations of real contexts and needs.

Narratives are not just a discourse or an interpretation. Narrative theorists have specified the prototypical characteristics and the communication type the audience most likely frames and conceives as a narrative. Herman (2009) defined a prototypical narrative as being a situated account that conveys an ordered temporal and causal sequence of events, a storyworld with particulars, an event that disrupts this storyworld and the experience of what it is like for a particular individual to live through this disruption. Critically analysing the prototypical narratives make it possible to understand and analyse the organisational context, its narrated reality and, ultimately, the ISD process. Narrative theoretical discussion implies that future users construct narratives while interpreting their operational reality. They then share these narratives with system developers, who elicit information relevant to the ISD process from users' personal experiences. In individualised disruptive experiences, the prototypicality of narratives explains the dynamics of competing narratives and clarifies and translates this mess into ISD-relevant information. This issue is significant since developers tend not to appreciate the socially constructed nature of requirements elicitation (Holmström & Sawyer, 2011). For example, values, motivations, and emotions are not thoroughly considered (Thew & Sutcliffe, 2017), and the contextual influence is disregarded (Poels et al., 2013; Sarkkinen, 2006). This lack of awareness easily results in splintered views and non-comprehensive understanding (Chakraborty et al., 2010; Holmström & Sawyer, 2011; Poels et al., 2013; Sarker et al., 2019). Thus, it is proposed that lessons from narrative theorists could improve the understanding of how human actors, such as users and systems analysts, transfer the information that will be used to design the ultimate system.

This inspired us to examine narratives and requirements elicitation. Given the persistent challenges leading to the failure of many ISD projects (as documented by Baghizadeh et al., 2020; Berente et al., 2022; Pekkola et al., 2013; Shaul & Tauber, 2013), it can be speculated that narrative theories could offer valuable insights or potential solutions. These insights could prove beneficial for both systems analysts and users engaged in requirements elicitation activities. We propose that, in the contemporary context of the ISD field, which operates beyond traditional methodologies and emphasizes the social aspects of ISD (Avison & Fitzgerald, 2006; Hirscheim & Klein, 1989; Siau et al., 2022), there is a need to contemplate how fundamental aspects of human interpretation and communication are addressed. This consideration paves the way for more successful ISD endeavours and usher in the next era of development methodologies.

The paper focuses on the most communication-intensive stage in ISD, requirements elicitation (Appan & Browne, 2012; Palomeres et al., 2022), which also has a significant influence on the overall process (Browne & Rogich, 2001; Poels et al., 2013). As our initial literature screening only produced sporadic results, we decided to systematically analyse the central IS literature to study *how narrative characteristics appear in the requirements elicitation studies*. We address the well-known communication gap between IS developers and users (Alvarez & Urla, 2002; Chakraborty et al., 2010; Flynn & Jazi, 1998; Palomeres et a., 2022; Tuunanen et al., 2007) by inspecting how narratives and their prototypical characteristics appear in the central stream of literature.

This paper is organised as follows. First, related works and our view on ISD and requirements elicitation are summarised. Then, the narrative theoretical discussion and how narratives appear in human communication are presented. Third, the systematic literature review method and main findings are explained. Finally, the findings and their implications are discussed.

BACKGROUND: REQUIREMENTS ENGINEERING

Organisations are storytelling systems (Dailey & Browning, 2014; Geiger & Antonacopoulou, 2009) where their employees, as human actors, create the social reality they subjectively perceive with narratives (Boje, 1991). In other words, actors perceive and reside in their own subjective storyworlds (Herman, 2009), where ISs are an integral component (Bano et al., 2017; Doolin, 2004; Iivari et al., 2010). The system thus has a central role in users' world perception (Bernardi & Exworthy, 2020; Carter et al., 2020; Doolin, 2004; Lamb & Kling, 2003). This underscores the importance of addressing both the users' needs and the demands of their narrated realities in ISD. Typically, these requirements are referred to as system requirements (Zave & Jackson, 1997). Nevertheless, deploying an IS into users' realities poses significant challenges, as evidenced by the prevalence of project failures (Baghizadeh et al., 2020) and user dissatisfaction (Kim & Kankanhalli, 2009; Lin et al., 2018). The intersection of social and technical aspects indeed presents considerable complexities in ISD projects (Sarker et al., 2019; Thew & Sutcliffe, 2017).

Zave & Jackson (1997, p. 5) state that "Requirements…describe what the desired machine does, not how it does it. More precisely, requirements…describe what is observable at the interface between the environment and the machine, and nothing else about the machine." Thus, the requirements focus on the future users and their needs and wishes, not on how those needs are fulfilled. To achieve this, requirements engineering, that is, "the process of discovering that purpose, by identifying stakeholders and their needs, and documenting these in a form that is amenable to analysis, communication, and subsequent implementation" (Nuseibeh & Easterbrook, 2000, p. 37), is conducted. This includes numerous activities and techniques to obtain an understanding of the system's requirements (Poels et al., 2013; Pressman, 2010, p. 119).

User requirements are generally collected by systems analysts through a series of interviews with users and managers during the requirements elicitation stage (Darke & Shanks, 1997; Liou & Chen, 1993; Meth et al., 2015; Palomeres et al., 2022; Vitharana et al., 2016). Users who are experts in their domain (Abelein et al., 2013) convey information from their work context (Kirsch & Haney, 2006).

The systems analysts then interpret this information that reflects users' experiences, expectations and needs (Crinnion, 1989). They then convert it into the requirements specification. The specification translates information from natural language to formal representations (Fuentes-Fernández et al., 2009) to be used by analysts, systems designers, programmers and their colleagues later on when actually developing the system (Crinnion, 1989; Oran et al., 2021).

The process by which user input is transferred into specifications is error-prone and vulnerable to misinterpretations (Fuentes-Fernández et al., 2009; Nuseibeh & Easterbrook, 2000). On the one hand, the issues originate from the cultural gaps between users and developers (Flynn & Jazi, 1998; Iivari et al., 2010). On the other hand, users have difficulty articulating their needs (Appan & Browne, 2010; Browne & Rogich, 2001; Darke & Shanks, 1997; Palomeres et al., 2022). Analysts also have difficulties understanding users and deriving requirements from their inputs in a natural language (Alvarez & Urla, 2002; Pohl, 2013). This emphasises the narrative characteristics and cognitive limitations of users, analysts and requirements elicitation methodologies relying on verbal communication (Palomeres et al., 2022; Pitts & Browne, 2007; Ramesh et al., 2010). It seems that people, such as users, analysts, and developers, tend to process the world and communicate via narratives. However, there may be a gap in their comprehensive understanding of what narratives truly entail (Raatikainen, 2023).

The recognition of non-technical aspects in requirements elicitation has gradually gained prominence (Siau et al., 2022). Particularly in the phases of methodology standardization and post-methodology within ISD, there has been a subtle shift towards prioritizing user experiences (Siau et al., 2022). Indeed, numerous requirements engineering methodologies, such as object-oriented methodologies, have scratched the narratives. They give an effort to address the problems of formal modelling and aim to elicit system needs (Jarke et al., 1998). These approaches include, for instance, use cases and scenarios (Jarke et al., 1998; Rolland et al., 1998; Sutcliffe, 2003). Use cases are collections of potential interaction sequences between a system and external actors (Cockburn, 1997), while scenarios stimulate users' vision (Jarke et al., 1998) and illustrate possible ways in which a system may be used (Rolland et al., 1998). For example, scenarios can be used to validate requirements because they are pragmatic "test data" against which the system may be checked (Sutcliffe et al., 1998). In addition, other techniques, such as storytelling, have been proposed to supplement use cases and scenarios (Boulila et al., 2011; Laporti et al., 2009). There, a group of stakeholders is explicitly asked to share stories about current and past systems so that they can then be translated into use cases and scenarios (Merisalo-Rantanen et al., 2005). User stories have also been used in higher-level requirements elicitation (Cao & Ramesh, 2008; Dalpiaz et al., 2019; Lucassen et al., 2016, 2017; Oran et al., 2021), as they are short and strictly templated descriptions that can anchor discussion between developers and users (Lucassen et al., 2016).

Use cases, use scenarios and user stories thus form a continuum from users' informal descriptions to developers' models and specifications (do Prado Leite et al., 2000; Oran et al., 2021; Sutcliffe, 2003). This pragmatic approach results in technically attractive specifications for development. Individual users with little training in modelling techniques can participate in the production of simple use-case diagrams and textual descriptions (Tiwari & Gupta, 2015). In theory, users can act as domain experts, while developers receive usable specifications for technical development.

The literature on use cases, scenarios and storytelling seems not to have adopted narrative theory but considers them mostly as tools to derive accurate specifications for systems development (Tiwari & Gupta, 2015). Despite the undeniable contribution of such techniques in addressing crucial concerns in requirements engineering, it appears that they disregard the fundamental role of narratives. In fact, these techniques only seem to explicitly incorporate the narrative aspect of sequencing events (see Herman [2009] later for event sequencing). This is valuable for development as it helps to discover the courses of actions that involve the system and users (Weidenhaupt et al., 1998). Development approaches seem to assume the production and interpretation of narratives as being relatively rational. This, however, is not aligned with the narrative paradigm that challenges humans' rationality (Fisher, 1985). This

raises a concern about whether other narrative characteristics are forgotten or simplified, as, according to Alsanoosy et al. (2019) and Mougouei et al. (2018), requirements elicitation methodologies seem to consider human-related aspects inadequately. All in all, it is concerning that narratives are even deliberately invited by some requirements elicitation techniques, but we are uncertain if the analysts indeed have the knowledge regarding the fundamentals of narratives.

Recent requirement engineering-related literature reviews have, for instance, focused on software requirement errors (Walia & Carver, 2009), requirements prioritisation (Achimugu et al., 2014), requirements engineering practices and challenges (Inayat et al., 2015), stakeholder identification (Pacheco et al., 2018), requirements elicitation technique maturity (Pacheco et al., 2018) and cultural influence on requirements elicitation (Alsanoosy et al., 2019). These reviews imply the need for more research on requirements elicitation (See also Siau et al., 2022). They note the need for research, for instance, in developing new methodologies to adequately perform stakeholder identification, a critical requirements specification activity (Pacheco et al., 2018), improving requirements prioritisation (Achimugu et al., 2014) or understanding cultural factors (Alsanoosy et al., 2019).

Additionally, use cases and scenarios were studied using literature reviews. Tiwari and Gupta (2015) concluded that use cases are indeed a much-utilised tool, but urged further research, for example, on the use cases' formalism and usability in different real-life contexts. Dermeval et al. (2016) studied the adoption of ontologies to increase specificity in requirements engineering. They, in line with Saghafi and Wand (2020), pointed out that coping with user communication is a persistent crux. Jarke et al. (1998) reviewed the use of scenarios and concluded that they are seen as practical tools for comprehending the future states of the world.

These literature reviews do not pay specific attention to information transfer that occurs during or before requirements elicitation. This issue becomes crucial as the entire ISD process is largely dependent on how well users' needs are conveyed to both the analyst and the requirements (Appan & Browne, 2012; Chakraborty et al., 2010; Kirsch & Haney, 2006; Liou & Chen, 1993; Marakas & Elam, 1998; Palomeres et al., 2022). This limited understanding may result from the systems developers' lack of appreciation of the socially constructed and conflicting nature of the requirements elicitation (Holmström & Sawyer, 2011; Kirsch & Haney, 2006). Developers perceive the problems that users articulate as merely technical (Urquhart, 2001). Thus, the system is designed to match what is explicitly stated, not what is actually needed, obviously reducing the value of the requirements (Holmström & Sawyer, 2011). In fact, analysts tend to dismiss the use of narratives and ask for explicit and specific rules and algorithms (Alvarez & Urla, 2002), although users find it very difficult to precisely articulate their needs (Byrd et al., 1992; Pitts & Browne, 2007; Ramesh et al., 2010). Consequently, analysts perceive narratives as *messy* information (Alvarez & Urla, 2002). Problems related to information transfer have been identified as central to requirements elicitation (Appan & Browne, 2012; Chakraborty et al., 2010; Darke & Shanks, 1997; Liou & Chen, 1993). However, it seems that the IS field does not know much about how narratives have been used in requirements elicitation, even though they have been theorised as the natural form of human interpretation and communication (Alvarez & Urla, 2002; Fisher, 1984; Raatikainen, 2023).

THEORETICAL BACKGROUND: NARRATIVES

The narrative paradigm from communication theory interprets texts critically (Fisher, 1985) and challenges the view that individuals are simply rational beings (Allen, 2017). According to Fisher (1984), "human communication should be viewed as historical and situational, as stories competing with other stories constituted by good reasons, as being rational when they satisfy the demands of narrative probability and narrative fidelity, and as inevitably moral inducements" (p. 2). (See also Allen [2017]). In cognitive narrative theory, a cognitive process (Herman, 2009, p. 92) in which people organise their own experiences and memories as well as the actions or representations by others into narratives, such as stories rationalising particular behaviour (Bruner, 1991, p. 4), is called

"narrativisation" (e.g., Fludernik, 2002) or "storification". However, the concrete shareable result of narrativisation (a narrative) is always told by one person to another, in certain circumstances and for some purpose (Phelan, 2018). A narrative is always a combination of cognitive and rhetorical factors, both a "natural" mode for human consciousness and an artefact prone to manipulation.

Cognitive narrative theorists argue that almost anything can be narrativised. Narrative is primarily a cognitive model that people use to make sense of time, progress and change (Branigan, 2013; Brown et al., 2008; Weick et al., 2005; White, 1981). However, some representations have more narrativity than others. A *prototypical* narrative conveys a structured sequence of specific events, representing a disequilibrium between a storyworld and a relational experience (Herman, 2009, p. 9). The prototypical elements of narrativity are contextuality, sequencing and selection of particular events, construction of a storyworld and experientiality, the sense of "what it is like" for a particular individual to live through particular events (Herman, 2009, p. 9). A narrative is distinct from alternative forms of information transfer (e.g., explaining) in that it focuses on specific events in contrast to general descriptions of how the world tends to be (Herman, 2009, p. 92). Consequently, narrative is a distinctive and complex mode of communication that requires a certain approach.

In narrative analysis, the narratives are interpreted with a specific focus on the ways they are constructed and told, the very reason for telling them, their substance and the ways they are performed (Allen, 2017). For instance, Alvarez and Urla (2002) used narrative analysis to assess what users tried to convey with their narratives. These users, working in a university's administration, shared compelling narratives in which students acted irresponsibly and caused inefficiency in administrative processes. The analysis concludes that the narratives provide a strategic approach that users use to deflect blame from current problems. While this analysis does not delve much deeper into the issue, it illustrates that narratives offer a revealing perspective into the environment (e.g. organisational culture) in which users operate.

A summary of the characteristics and prototypical elements of the narratives is presented in Table 1. Their relationship to requirements elicitation will be discussed later.

Occasion for Telling: Contextuality

A narrative is always conditioned by its context and the occasion for telling (Herman, 2009, p. 37). The participants strategize their approach to cope with narrative information transfer (Herman, 2009, p. 40). They interpret the context through cognitive and interpretive frames that aid them in channelling and delimiting possible inferences (Herman, 2009, p. 40). They hold statuses and roles that help them process the situation (Goffman, 1981, p. 124). In this context, the participants are not simply either tellers or listeners; rather, their statuses may be decomposed into smaller yet coherent ones (Goffman, 1981, p. 129), such as an addressee or an eavesdropper (Herman, 2009, p. 41). Therefore,

Table 1. Prototypical elements and corresponding narrative characteristics

Prototypical Element	Characteristic	Interpretation
Relation to the Context and Occasion for Telling	Contextuality	The narrative act as altering the surrounding context and the actors in it.
Structured Sequence of Specific Events	Subjectivity	Narrativisation as a cognitive and strategic approach for information transfer.
Conveying "*what it was like*"	Subjectivity	Storytelling as conveying subjective and personalised experiences.
Construction of Storyworlds and Introducing Disequilibrium	Mental Representations	Narrativisation as a mental construction of reality. Narratives highlighting storyworld disruption, a breach in the script or other trouble.

framing the occasion influences how the participants' statuses are assigned and addressed, as well as their expected behaviour. Statuses may shift, influencing the nature of the occasion (Herman, 2009). Consequently, the audience, even by its mere presence, alters how a narrative is designed.

The participants also influence the construction of a narrative in a more direct way. While a narrator verbally communicates a narrative, the participants contribute through their verbal and non-verbal actions (Garfinkel, 1967; Herman, 2009; Riessman, 2000, pp. 46–47). Personal narratives, often told in interviews, have been described as negotiations between the narrator and the audience concerning, for example, how the narrator should be perceived (Riessman, 2000). Often, the narrator's intention is not to reveal his/her essential self but rather to convey a preferred self for the audience (Riessman, 2005). The narrator takes his/her audience into account by choosing, organising and connecting events so that they are purposeful (Riessman, 2005, p. 1).

A narrative is firmly embedded in its context and structured in collaboration among the participants. If the context changes, the structure of the narrative is altered. Identical narratives are not told in different contexts (Herman, 2009). Consequently, the occasion for telling and the surrounding context when interpreting narratives need to be acknowledged and transferred during requirements elicitation.

Structuring the Sequence of Particularised Events and Conveying Experiences: Subjectivity

While a person is telling a narrative, objective facts are not shared; rather, he/she is sharing his/her personalised interpretation of experiences (Riessman, 2005, p. 1). Personal narratives do not reconstruct the past into its original form. The narrator interprets events through narratives to create personal and shareable meanings (Riessman, 2000). Confusing and arbitrary reality are unified by rationalising them through plot construction (Riessman, 2000). Narratives do not reconstruct the past as much as they refract it (Riessman, 2005). The narrator also makes strategic choices while braiding a rational plot for the representation (Riessman, 2000). The particulars chosen to construct the storyworld are selected mainly to support the rendering of a personal experience and hence cannot be treated as objective "data". Thus, the most constructive approach is not to consider narratives as factual representations of events because the process consists of various subjective and cognitive factors. For instance, power dynamics, social discourses, unconscious desires, conflicts and traumas influence the narrating process (Riessman, 2002; Schiff, 2012). Consequently, although narratives do not speak for themselves or unfold facts about events (Riessman, 2002), they are valuable entry points into an individual's experience to see what it has been like to live through conveyed events.

Narratives tend to place heavy emphasis on an individual's actions and choices while downplaying supra-individual agency, processes and structures. Complex systems do not easily lend themselves to narrativisation due to their lack of individual subject positions and clear temporal–causal sequences. Thus, a similar subjectivity is more than likely present in requirements elicitation and should be acknowledged.

Construction of Storyworlds and Storyworld Disruption: Mental Representations

Narrated events prototypically represent disequilibrium in a reality constructed by stories: the storyworld (Herman, 2009, p. 105). Storyworld is the mental model in which a situation is placed and recounted (Herman, 2009, p. 109). It is a representation that enables an interpreter to frame inferences of situations, characters and occurrences (Herman, 2002, pp. 9–22). Different storyworld particles are conveyed by the narrative (Herman, 2009, p. 109). Both the construction and the interpretation processes are affected by the participants' pre-existing expectations, scripts and frames. Narratives often include a report on "how an implicit canonical script has been breached, violated, or deviated from in a manner to do violence to its legitimacy" (Herman, 2009, p. 20). Narratives may stabilise an individual's storyworld so that deviation from a canonical cultural pattern becomes mitigated or comprehensible (Bruner, 1990, pp. 49–50). This helps one understand the gaps in experiences and expectations and comprehend confusing events (Herman, 2009).

Narratives do not convey events and situations as objective realities. Rather, they represent events that occur in a storyworld constructed according to linguistic cues. As such, they are rhetorically rather than representationally motivated. Because narratives are altered by the mental lenses through which the narrator views "the reality", the narrators' ideologies and interests are also integrated in their narratives (De Fina & Georgakopoulou, 2011). Thus, the storyworld acts as frame-filtering information so that the form of the mental representation is maintained. The actors possess a perception of their surroundings, which emerges from a "process of interpreting the messages their senses to provide order and meaning to the environment" (Alan & Gary, 2011, pp. 74–75). This perception guides their actions around the world (Weick et al., 2005). Carefully entering to a storyworld may provide valuable information about the narrator's experiences and views that may, in turn, translate into concrete action in the actual world.

RESEARCH METHOD

Our study follows the Webster and Watson (2002) and Kitchenham (2004) guidelines for systematic literature reviews. A systematic literature review is an appropriate approach when the intention is to summarise existing literature to reveal empirical evidence and to identify gaps in current research (Kitchenham, 2004). The next section describes how the review process was carried out.

Database and Keyword Selection

The focus was twofold. First, the focus was on major IS journals since they most likely present a central discussion and major contributions on the topic (Webster & Watson, 2002). Thus, the intention was not to review all possible research outputs. Rather, it was assumed that the central stream of IS literature reflects those topics that are significant in the discipline. This stream is also most likely found in journals rather than, for instance, conference proceedings. While there are highly valuable publications at conferences, top-level journal publications tend to be more carefully reviewed and follow the most central topics more closely. In addition to ensuring that the focus is on the most central IS literature, the focus on the journals that are widely recognised as top level also ensures that our study obtains and analyses only high-quality publications. We thus analysed this central stream of IS literature to see how it approaches narrative theoretical discussion in the context of requirements elicitation. For this purpose, eight top IS journals were included (*Association for Information Systems* [AIS], 2019): *Management IS Quarterly* (MISQ), *IS Research* (ISR), *Journal of Management IS* (JMIS), *Journal of the Association for IS* (JAIS), *European Journal of IS* (EJIS), *IS Journal* (ISJ), *Journal of Information Technology* (JIT) and *Journal of Strategic IS* (JSIS). Second, a requirement engineering-specific journal (*Requirements Engineering* [RE]) was included to gain broader and more precise coverage of the topic.

First, a search in the major IS journals was conducted for explicit discussion on stories and narratives. The search was conducted in 2023 – thus the the last year for including articles was 2022. In this search, the terms "stories" and "narratives", and their synonyms, including "*narration*", "*discourse*", "*tale*", "*account*", *chronicle*" and "*anecdote*", were included. This search did not return an adequate number of relevant papers, so it was impossible to analyse the explicit discussion of the topic. We thus focused on assessing a more implicit discussion with an interpretive mindset.

For the actual search process, keywords were adopted from earlier relevant systematic literature reviews on requirements elicitation (Alsanoosy et al., 2019; Inayat et al., 2015; Riegel & Doerr, 2015; Schön et al., 2017). We reflected these literature reviews and interpreted which keywords were the most relevant for the purpose of focusing on requirements elicitation actions between analysts and users. Because our sample journals had two different focuses, the search terms were tailored accordingly. For the eight IS journals, "*requirements engineering", "requirements elicitation", "requirements determination", "requirements analysis", "requirements specification"* and "*requirements verification*" were used to get all articles discussing requirements elicitation.

As the RE journal already focuses on requirements engineering and subcategories of requirements engineering, the search had to be narrowed. We wanted to keep the number of papers manageable, so we had to identify the studies that specifically focus on the requirements elicitation interaction between users and analysts. In other words, our interest was in the process by which analysts and users interacted and produced the requirements. We thus conducted the search with the terms: "*users*", *analysts*" and "*communication*" and their synonyms "*stakeholder*", "*client*", "*requirements engineer*", "*interaction*", "*negotiation*", "*exchange*", "*discussion*" and "*interview*". Both literature searches were targeted to titles, abstracts, and keywords.

We then applied predefined inclusion and exclusion criteria (Kitchenham & Charters, 2007):

- **Inclusion:** English peer-reviewed studies, journal articles, studies focusing on requirements elicitation and the factors influencing it.
- **Exclusion:** Studies not in English, studies not related to research interest, duplicated studies, short articles and editorials.

The first author analysed each abstract. The first inclusion criteria were applied to find a pool of candidate articles. Next, the exclusion criteria were applied to the candidate articles to arrive at the final pool of articles. These were then analysed in detail. The search process is illustrated in Figure 1.

A total of 61 articles were included. The excluded articles did not have a specific focus on requirements elicitation but only referenced it. For example, Moe et al. (2017) examined requirements specifications in a public procurement process. The study focused on public procurement, in which extensive dialogue may not occur between developers and clients. Any in-depth discussion on requirements elicitation between analysts and users was absent. Similarly, Mantha (1987) investigated the completeness of logical data specifications and ignored the description of how requirements are constructed for developers. While these studies are invaluable, their contribution to understanding the narratives in a requirements elicitation context is insignificant. In contrast, for instance, Appan and Browne (2012) explored analysts' influence on certain actions during requirements elicitation; thus, that study discussed the context for narratives and was relevant to the review.

Figure 1. Search process
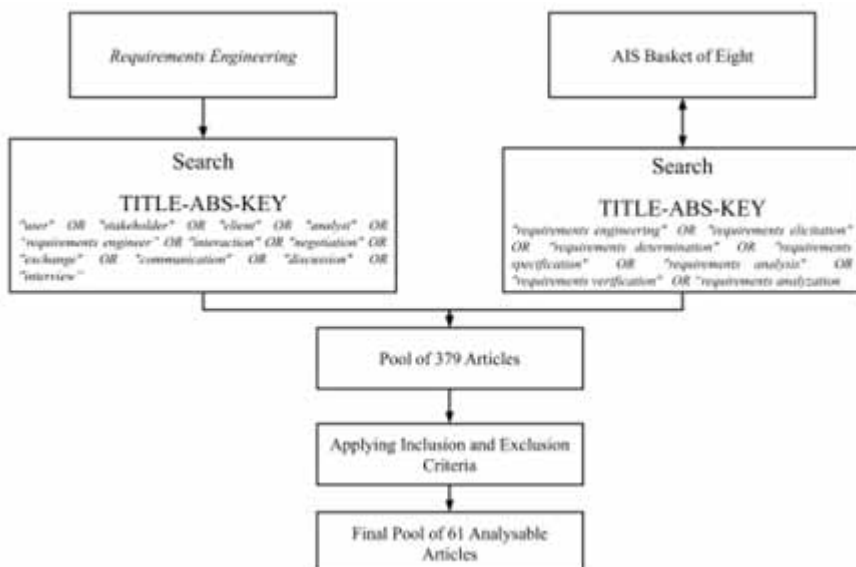
Analysis

After identifying the articles, they were analysed in detail. The bibliographical information and research methods were recorded for each article. Then, an interpretive qualitative analysis was conducted to see how narrative characteristics were discussed in the articles (Walsham, 2006) using the elements of narratives as a lens (Table 1 earlier; see also Bowen [2006]). First, the different points of interest that described the requirements elicitation were identified. Specifically, the focus was on the factors that may influence requirements elicitation. They were then labelled and grouped into broader categories by interpreting their relationship to the narrative characteristics—*contextuality*, *subjectivity* and *mental constructions*—and then they were placed into these categories accordingly. During the coding, when new details emerged, they were continuously mapped with earlier categories to ensure consistency. Thus, the categories were continuously iterated. Table 2 shows an example of the coding procedure.

FINDINGS

The IS literature shows that narrative characteristics influence requirements elicitation. In 61 articles, narrative characteristics were cited 269 times – at least implicitly. The prototypical narrative elements and the corresponding elicitation factors as narrative characteristics are presented in Table 3.

In requirements elicitation narrative characteristics include several prototypical narrative elements. For example, seven different and coherent factors were identified in subjectivity. In contrast, in terms of mental constructions, only two factors correspond to requirements elicitation: mental models (MMs) and mental frames (MFs) (The first concept focuses on simplified representations of how things work, aiding understanding and decision-making whereas the latter concept focuses on cognitive

Table 2. Coding examples

Example	Interpretation	Code Category and Subcategory
"From a requirements honesty viewpoint, agile development may have a negative impact on the requirement principles of purposefulness, appropriateness and truthfulness" (Ramesh et al., 2010, p. 450).	The methodology (agile) is perceived to alter the requirements.	Contextuality: [Approaches, methodologies and techniques]
"Retrieval cue (e.g., a question or statement by a systems analyst) can activate a number of mental representations in a person's mind, thereby causing difficulties in recall" (Appan & Browne, 2010, p. 252).	The analyst may influence the user's input in the requirements elicitation interviews.	Contextuality: [Analyst's role and actions]
"User representatives may suffer from "overconfidence" regarding their knowledge of their business domain, or they may have "recall bias," which can hinder the elicitation of the requirements or the development of a shared mental model" (Rosenkranz et al., 2014, p. 228).	Cognitive limitations influence how the requirements emerge.	Subjectivity: [Cognitive factors]
Creative IT requirements "result in part from characteristics of individuals in the group, such as cognitive factors, motivation, and knowledge" (Cooper, 2000, p. 248).	Cognitive and motivational factors influence the requirements elicitation.	Subjectivity: [Cognitive factors] Subjectivity: [Motivational factors]
Participants "interpret their organizational worlds to arrive at an understanding of requirements. In this process of interpretation, frames act as templates for problem-solving as well as imprecise, conservative filters for new information" (Davidson, 2002, p. 331).	The participants' mental frames alter their interpretations and further the requirements.	Mental Constructions: [Mental frames]

Table 3. Narrative characteristics

Narrative Characteristics	Correspondence in Requirements Elicitation	Description
Contextuality	Approaches, methodologies and techniques	The used systems development approach, methodologies and techniques alter how the requirements emerge.
	Cultural and organisational context	The cultural and organisational context surrounding the requirements elicitation influences how the requirements emerge.
	Interactivity	Requirements emerge from and are altered by the actors' interactions during the requirements elicitation.
	Analyst's role and actions	The analyst influences how the requirements emerge by e.g. providing cues and directing the discussion.
Subjectivity	Cognitive factors	The participants' subjective cognitive factors influence the requirements.
	Experiences	The participants' personal experiences and background influence the requirements.
	Abilities and skills	The participants' personal skills and abilities influence how the requirements emerge.
	Assumptions	The participants' subjective assumptions influence the requirements elicitation.
	Motivational factors	The participants' motivational issues influence how the requirements emerge.
	Relationship	The relationship and trust between the participants influence the requirements process and how the requirements emerge.
	Perceptions	The participants' subjective perceptions alter how the requirements emerge.
Mental Constructions	Mental models	The participants' mental models influence their perceptions and how the requirements emerge.
	Mental frames	The participants perceive the world through their mental frames, which influences the requirements elicitation.

perspectives that shape how people interpret information). All in all, this implies that discussions related to subjectivity are much broader than discussions related to mental constructions.

Narrative Characteristics in the Reviewed Journals

Figure 2 illustrates how the articles are distributed along the time axis.

In Figure 2, the summary line implies that the general interest in requirements elicitation has been relatively constant in the central IS literature. The topic emerged there around 1990 and peaked around

Figure 2. Articles by year of publication
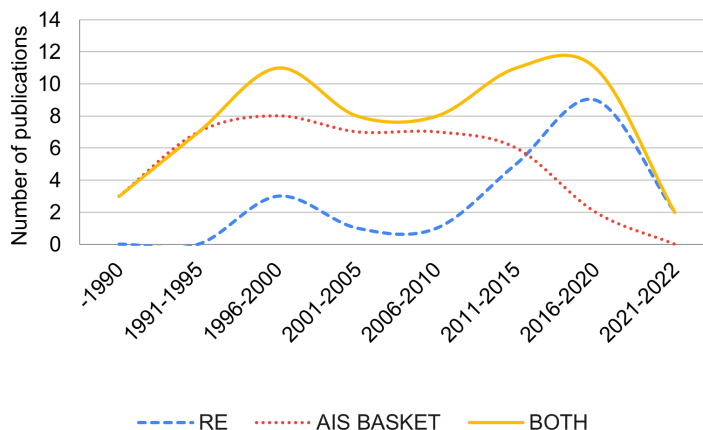
2000. While the number of articles is relatively low (61), some trends can still be identified. For RE journal, the interest has steadily increased (note that the timespan of 2021-2022 includes only two full years). On the other hand, interest in requirements elicitation has decreased in IS-specific journals.

Table 4 illustrates how different narrative characteristics are identifiable during the timespan. It is noteworthy that one article may have several characteristics.

There were three almost identical publication peaks with a high number of narrative characteristics (1996–2000, 2001–2005 and 2011–2015). The topic was then discussed more intensively. However, intensive discussion is different from comprehensive discussion. Although there were fewer papers in 2006–2010, those papers considered more of the narrative characteristics. It seems that comprehensiveness has slightly increased over time.

Different requirements elicitation approaches, methodologies and techniques (abbreviation: Appr.) have received constant attention (and peaked in 1996–2000). The role of analysts (Analyst) has also been a major topic and has been simultaneously addressed with approaches and methodologies. Emphasising the interactive and communicative nature of requirements elicitation drew significant interest first in 1996–2000 and has been a central topic ever since.

Interest in subjective issues emerged around 2001–2005. Cognitive factors (Cogn.) appeared fairly constantly, already appearing in 1996–2000. In contrast, the assumptions the participants may possess (Assump.), motivational factors (Motiv.) and the relationship (RS) between the participants did not receive a relatively significant amount of attention at any moment in time. Only sporadic attention has been paid to mental constructions, such as MMs. Thus, there is no clear peak, although in 2011–2019 the theme has gained slight increasing attention. The trend seems to be that early research focused on the context, then the interest geared towards individuals, and finally psychological issues (mental constructions) emerged.

The extent to which different journals discussed narrative characteristics was also analysed. This is illustrated in Table 5.

Of the major IS journals (AIS Basket of Eight), MISQ and JMIS had the most articles (nine and eight articles, respectively), and RE had even more (21 articles). Thus, they provide a representative sample of the topic. JSIS had only two articles, but the number of individual characteristics in those articles was great. This implies the broadness of the discussion. Evidently, the topic is not of interest to ISR.

Table 4. Narrative characteristics along the timespan

	Articles	Appr.	Cult & Org	Interact	Analyst	Cogn.	Exp	Abil.	Assump.	Motiv.	RS	Percept	MMs	MFs	All Hits	Hits per Article
−1990	3	2	1	1	1	2	1	0	1	0	0	1	1	0	11	3,7
1991–1995	7	6	0	2	2	5	3	1	0	0	0	2	2	0	23	3,3
1996–2000	11	9	2	5	7	6	2	5	2	1	1	3	0	0	43	3,9
2001–2005	8	5	4	5	6	5	4	3	3	2	3	2	1	1	44	5,5
2006–2010	8	7	4	7	6	6	2	4	0	2	3	2	0	1	44	5,5
2011–2015	11	7	3	6	5	7	4	3	3	2	1	4	2	2	49	4,5
2016–2020	11	8	3	4	6	6	5	4	0	4	2	0	5	0	47	4,3
2021-2022	2	1	0	1	1	2	1	1	0	0	0	0	0	0	8	4,0
Total	61	45	17	31	35	39	22	21	9	11	10	14	11	4	269	

Table 5. The narrative characteristics discussed in different journals

	Total	Appr.	Cult. & Org.	Interact	Analyst	Cogn.	Exp	Abil.	Assump.	Motiv.	RS	Percept.	MMs	MFs	All Hits	Hits per Article
EJIS	5	5	4	4	2	2	1	2	1	1	1	1	1	0	25	5,0
ISJ	6	5	1	3	5	3	1	4	0	1	1	3	0	0	27	4,5
ISR	1	1	0	1	1	1	0	1	0	0	0	1	0	0	6	6,0
JAIS	6	2	1	3	5	5	1	2	1	1	1	1	1	2	26	4,3
JIT	3	3	0	1	1	1	0	1	0	0	0	1	1	0	9	3,0
JMIS	8	6	1	2	5	7	5	3	1	1	1	2	3	0	37	4,6
JSIS	2	1	2	2	2	0	1	2	1	1	1	2	0	0	15	7,5
MISQ	9	8	3	4	4	8	5	1	2	2	1	3	1	2	44	4,9
RE	21	14	5	11	10	12	8	5	3	4	4	0	4	0	80	3,8
	61	45	17	31	35	39	22	21	9	11	10	14	11	4	269	

Research Methods

Analysing the research methods illustrates a narrow approach to the topic. Experiments and different case studies were most often used. Other methods, such as action research, surveys, design research or ethnography, occurred only rarely and were used in one or two articles. Again, to determine the relationship between research methods and narrative characteristics, the articles were classified accordingly (Table 6).

Table 6. Narrative characteristics and different research methods used in the reviewed articles

		Appr.	Cult. & Org.	Interact	Analyst	Cogn.	Exp	Abil.	Assump.	Motiv.	RS	Percept.	MMs	MFs	All Hits	%
Experiments	24	19	2	10	18	18	12	8	2	3	3	3	8	1	107	40
Case studies	11	7	4	9	4	7	4	3	4	1	1	2	0	2	48	18
Multi-Case	5	3	4	5	5	3	1	5	1	2	3	4	0	1	37	14
Action research	4	4	1	1	2	1	1	1	0	0	0	1	0	0	12	5
Design Science	1	1	1	0	0	0	0	1	0	1	0	0	1	0	5	2
Surveys	3	3	1	0	0	1	0	0	0	1	0	0	1	0	7	3
Pilot studies	1	1	0	1	0	0	1	0	0	0	0	1	0	0	4	2
Ethnography	1	1	1	1	0	0	0	0	0	0	0	0	0	0	3	1
Observations	1	1	0	1	0	1	0	0	0	0	0	1	1	0	5	2
Literature Reviews	5	2	2	2	2	5	1	1	1	2	3	1	0	0	22	8
Critical incidents	1	0	0	1	1	0	0	1	0	0	0	0	0	0	3	1
Not specified	4	3	1	0	3	3	2	1	1	1	0	1	0	0	16	6
	61	45	17	31	35	39	22	21	10	11	10	14	11	4	266	100

By far, experiment is the research method that is most often used. Evidently, these articles also cover the most narrative characteristics (40% of all occurrences). They often emphasise approaches, methodologies, techniques, cognitive factors and MMs or constructions. The case study method is also used in a significant stream of research. However, narrative characteristics are approached more holistically, and different characteristics are considered and distributed relatively evenly. The use of other methods, such as ethnography or literature reviews, is rare. For instance, ethnography was the method used in a single article.

Narrative Characteristics

Then we analysed how the requirements elicitation discussion coincides with the narrative characteristics. This is summarised in Table 6 while the details are attached as shown in the Appendix.

For the most part, the contextuality characteristic has been discussed through the development approaches, methodologies and techniques (Appr.); it appears in over 75% of all the reviewed articles. This represents approximately 17% of the 261 occurrences of narrative characteristics. Most of the discussion on subjectivity characteristics has centred on cognitive factors (cogn.) that were found in 62% of all the articles, representing 14% of all identified characteristic occurrences. In contrast, for instance, the participants' subjective assumptions (Assump.) are discussed much less often; they were found in only 15% of the articles, which represents only 3% of all characteristic occurrences. Construction of the MMs attracted the least amount of attention. MMs are discussed in 18% of the articles; MFs are discussed in 7% of the articles and MFs represent only 1% of all the characteristic occurrences.

Individual articles vary significantly in terms of considering different narrative characteristics. For example, Urquhart (2001) provided the widest perspectives when exploring how social and organisational contexts impact conversations when new ISs are defined. In contrast, Sakthivel (1991) only surveyed approaches, methodologies and techniques when examining different requirements verification techniques. Interestingly, Ramesh et al. (2010) took a relatively wide perspective on the same topic, requirements elicitation practices, covering up to nine different characteristics from a multiple case study.

Our findings underline the contextuality of the requirements. Most of the articles investigated the relationship between the requirements and the approaches, methodologies and techniques used. For example, Pitts and Browne (2007) argued for the efficacy of using procedural prompts in requirements elicitation, while Appan and Browne (2010) exemplified how the use of iterative methodologies places the requirements under the influence of retrieval-induced forgetting. Westrup (1999) illustrated that requirements techniques translate problematic situations into agreed-upon representations, thus operating as inscription devises. The analysts' role and influence in eliciting the requirements have been identified as central contextual factors. For instance, an analyst uses cues (Appan & Browne, 2010, 2012) and directs (Browne & Rogich, 2001) users to explore important topics. In fact, Hughes and Wood-Harper (1999) argued for an analyst's role as a researcher and bricoleur.

Our findings also indicate that the requirements are influenced by subjectivity. The participants' cognitive factors are especially emphasised in requirements elicitation. As human beings, all actors are subject to cognitive limitations (Byrd et al., 1992). They thus have difficulties processing information (Marakas & Elam, 1998). Cognitive shortcomings explain why analysts may only partially understand the requirements (Appan & Browne, 2010). Generally, the participants' abilities influence the requirements and, for example, the analyst's role demands a wide variety of abilities and skills (Byrd et al., 1992; Klendauer et al., 2012; Pitts & Browne, 2004, 2007). Yet, the relationship between analysts and users, and their reciprocal trust, is less often discussed, although (Chakraborty et al., 2010) it showed the importance of trust for knowledge transfer, which the requirements elicitation essentially is (Byrd et al., 1992).

Mental constructions have received very little attention (see Table 1). The few exceptions to which it is addressed include Chakraborty et al. (2010) and Appan and Browne (2012), who argued

that the differences between analysts' and users' MMs are significant. Furthermore, Davidson (2002) and Appan and Browne (2012) noted that participants' MFs filter information, thus influencing their interpretations of reality (Rosenkranz et al., 2014, p. 20).

DISCUSSION

Human communication is a complex situational and cognitive process (Herman, 2009). Although narratives have been explored in the context of requirements elicitation (Alvarez & Urla, 2002)—and in general, IS project descriptions (Avison et al., 2017; Hekkala et al., 2018)—they have not been thoroughly addressed. In addition, popular requirements elicitation techniques, such as scenarios, use cases, user stories and storytelling seem to merely scratch the narratives. However, several narrative characteristics appear, both explicitly and implicitly, in the central IS literature. This strengthens the concern the ISD field may currently lack comprehensive understanding regarding narratives.

In addition to RE journal articles, requirements elicitation has been discussed in major IS journals. Interestingly, interest in IS journals has decreased since the 2010s. This could possibly be due to the increase in attention towards agile methodologies (Parthasarathy & Daneva, 2021), which often avoids traditional requirements elicitation approaches and terminology (Erickson et al., 2005; Merisalo-Rantanen et al., 2005; Ramesh et al., 2010; Turk et al., 2005). Nevertheless, our findings encourage IS research not to neglect requirements elicitation since, no matter which ISD approach is used, the design of the system emerges from the user–analyst interaction. Requirements elicitation is still the key activity in ISD (Palomeres et al., 2022; Siau et al., 2022).

In addition, there is some variance in how the studies distinguish narrative characteristics. For example, the dominating research method—experiments—emphasises subjective factors, whereas case studies focus on contextuality. This is understandable since the subjects can be better controlled in experiments while cases are context-specific. Thus, studies using experiments offer detailed insights into an individual's behaviour, making it possible to assess subjective traits.

In general, narrative elements appeared widely in the requirements elicitation articles. Their presence is often implicitly acknowledged but not explicitly mentioned or addressed. This observation aligns with Alvarez (2001a, 2001b) and Alvarez and Urla (2002). Narratives are often constructed in interviews (Riessman, 2000), which is a traditional information transfer channel in requirements elicitation (Darke & Shanks, 1997; Liou & Chen, 1993; Palomeres et al., 2022; Vitharana et al., 2016). During requirements elicitation, users tend to construct stories and use narratives when they respond to an interviewer's questions (Alvarez & Urla, 2002).

Narrative characteristics were implicitly identifiable in the articles. However, none of the characteristics were addressed comprehensively. Often, the focus was on a certain area. This represents a fragmented inclusion of narratives. The findings emphasise the contextuality of requirements elicitation. Specifically, development approaches, methodologies and techniques were cited to influence how the requirements emerge. Consequently, certain development approaches were preferred over others (e.g. Liou & Chen, 1993). In the requirements elicitation literature, a strong emphasis on development methodologies has been criticised (Tuunanen et al., 2007). This trend may explain why contextual characteristics are overrepresented in the sample.

As a contextual factor, analysts' actions, such as cues and how information is presented, alter users' responses (e.g. Appan & Browne, 2010, 2012). Requirements elicitation is essentially a communicational activity (Marakas & Elam, 1998; Palomeres et al., 2022; Thanasankit, 2002) so the focus on main actors and their influence is natural. The subjectivity of the requirements elicitation was also strongly supported. Cognitive factors, such as the participants' limitations and abilities, were found to influence the requirements (e.g. Appan & Browne, 2010, 2012; Browne & Rogich, 2001; Byrd et al., 1992). However, the support for mental constructions was weak, although, for instance, Appan and Browne (2012) argued for the differences between analysts' and users' MMs and schemes. Davidson (2002) also explained that the participants' MFs filter information and work as

templates in problem-solving. Thus, some of the literature emphasised contextuality and subjectivity in requirements elicitation but did not consider mental constructions.

Applying a narrative lens sheds light on the activities that occur in requirements elicitation. Similar to any narrative (Herman, 2009), the occasion when information is transferred shapes how requirements emerge. This appears when preferring different development methodologies since some techniques may result in users having difficulties processing information. This inevitably has an impact on the requirements (Appan & Browne, 2012). Furthermore, the participants' co-productive role was supported since the analyst is an active contributor, not a passive observer (Appan & Browne, 2012; Browne & Rogich, 2001; Hickey & Davis, 2004). However, the co-production phenomenon is much broader. Narratives are constructed in cooperation where the participants' presence (Goffman, 1981; Herman, 2009) and verbal and non-verbal actions (Garfinkel, 1967; Herman, 2009; Riessman, 2000) shape the narrative. An analyst uses cues that may influence users' responses (Appan & Browne, 2010). Under these circumstances, information does not solely reflect the users' views.

Requirements are personalised interpretations of an interpreter's experiences. Subjective cognitive factors alter the output since requirements are largely the result of users recalling the events (Appan & Browne, 2010). A user is subjected to limited and biased memories (Byrd et al., 1992). Thus, the content of communication does not reveal objective facts but reflects one's subjective interpretation of the past. This issue is seldom studied in the requirements elicitation context.

In essence, our findings demonstrate the utility of a framework espoused by narrative theoretical discourse in informing research and practice in RE. Such a framework incorporates prototypical narrative elements (Herman, 2009), which, as we have shown, have hitherto been implicitly acknowledged and insufficiently addressed by the core body of RE research. While the ISD field is progressively growing more aware of social issues (Siau et al., 2022), it has yet to fully recognize the fundamental role of human interpretation and communication, namely narratives. Therefore, we recommend that practitioners, before hastily embracing techniques like storytelling, cultivate a more comprehensive understanding of the essence of narratives. Comprehending the system requirements is evidently a narrative-based process, that our framework supports. We thus argue that the adoption of this framework in RE and ISD could enhance the overall success of these domains.

Recommendations for Future Work

This discussion highlights two crucial points. First, it underscores the implicit recognition of the individual narrative characteristics within the IS literature regarding requirements elicitation. Second, it emphasizes that various narrative characteristics have often been examined in isolation, sometimes with a narrow focus on specific aspects. This limited perspective hinders a comprehensive understanding of requirements and their elicitation, potentially resulting in systems that inadequately serve their user needs. Our findings advocate for ongoing exploration of requirements elicitation within the IS literature, encouraging researchers to generate fresh insights and innovative ideas that can enhance the understanding of sociotechnical challenges (Siau et al., 2022). We propose the incorporation of narratives into these research endeavours. As a result, following future research avenues emerge:

1. At present, narrative characteristics and prototypical elements are examined in a scattered manner. For example, many articles concentrate on the superiority of certain methodologies, justifying their positions with subjective factors. However, this focus is often too narrow and fails to fully embrace the nature of narratively conveyed information. Narratives are not a simple means of communication through which users merely disclose objective facts to developers. A limited focus on specific dimensions only contributes to the tendency to oversimplify requirements elicitation (Chakraborty et al., 2010; Holmström & Sawyer, 2011; Urquhart, 2001), where methodologies are frequently presented as quick and easy solutions (Chakraborty et al., 2010; Tuunanen et al., 2007). Given that the presence of narrativeness has already been recognized, future research should encompass various characteristics to comprehensively capture the complexity of social

interactions. Failing to do so undermines and oversimplifies the issues, leading to claims that different problems arise from inappropriate methodologies or individuals' cognitive limitations. Although these factors have already received considerable attention, they have not been linked to the concept of narratives. The initial step is to explicitly acknowledge that requirements elicitation is an activity involving the transfer of knowledge through narratives. This prompts researchers and practitioners to consider narratives in a holistic manner, incorporating all characteristics that influence requirements elicitation.

2. While the articles hinted at the presence of narrative characteristics, the characteristics were neither explicitly addressed nor mentioned, resulting in narratives not being incorporated into requirements elicitation studies. This causes concern since requirements elicitation is primarily a communicative activity, and many problems that later lead to ISD failures stem from human interactions (Appan & Browne, 2012; Oran et al., 2021). Therefore, the insights from narrative theory, as proposed by Fisher (1984) and Herman (2009), hold the potential to inspire the development of new approaches, methodologies, and techniques for requirements elicitation and subsequent development phases that consider the role of narratives. This could serve as a valuable lens for analysing and comprehending the root causes of ISD problems and failures. Hence, adopting lessons from narrative theorists offers potential for better understanding of these issues.

3. While narratives are not explicitly discussed, their characteristics are implicitly present. This underscores the need to comprehend how narratives unfold. Explicitly identifying the narratives and analysing their influence would yield a more concrete understanding of how human communication unfolds during requirements elicitation and the issues that impact it. This approach has been employed in organizational research to explore how narratives relate to organizational contexts (Boje, 1991; Brown, 2006; Geiger & Antonacopoulou, 2009). Similarly, applying narrative analysis to examine the users' inputs offers a more representative insight into their perspectives and enable the analysts to grasp their realities.

4. The analysts not fully absorbing the users' conveyed information extends beyond requirements elicitation phase and continues throughout the development process (Oran et al., 2021; Rosenkranz et al., 2014). Analysts specify previously elicited requirements as development guidelines and specifications. Developers then interpret these concepts when translating them into system code. Just like in requirements elicitation, these interpretive activities are influenced by narrative characteristics. Like requirements specifications, also other actors' interpretations are subjective perceptions rather than objective facts. Therefore, after integrating narratives into requirements elicitation, future research should continue to explore their role in other ISD activities.

Theoretical Implications

Our study suggests that the narrative theory principles can be applied within the realm of requirements engineering. More precisely, our review offers compelling evidence that during requirements elicitation, both analysts and users engage in communication and interpretation through the lens of narratives. While this finding may not be revolutionary on its own, as previously demonstrated by Alvarez and Urla (2002), our study unearthed fresh insights that underscore the significance of incorporating narrative theory into requirements engineering.

By adopting a narrative theoretical perspective, the applicability of this approach could transform and enhance the IS field's views on requirements engineering. This perspective underscores that requirements do not exist in a vacuum but rather arise from a sociocognitive co-creation process situated within a contextual environment that involves, at minimum, analysts and users (and possibly other stakeholders during requirements elicitation). Consequently, requirements are socially and subjectively co-produced outputs. They should not be regarded as accurate representations of needs but rather as one of many sources of information that supports the understanding of the new IS.

The narrative theoretical perspective provides a framework of core narrative elements that can bolster requirements engineering. These elements acknowledge the fundamental role of narratives, and when employing a narrative theoretical perspective, requirements engineering researchers can scrutinize system requirements through a narrative lens. This views requirements as a narrative process, all the while recognizing that narratives are not static truths and should not be the sole basis for precise representations of comprehensive needs.

Implications for Practice

This study enhances the requirements elicitation practice by highlighting the crucial role of narratives there. This insight will encourage requirements elicitation practitioners to adopt more nuanced approaches by integrating narrative awareness. The analysts, in particular, may incorporate narrative awareness into existing requirements elicitation methods. Avenues for such integration may involve agile and object-oriented methodologies, including the utilization of techniques such as use cases, scenarios, and storytelling.

On the one hand, integrating narrative awareness into the use cases and scenarios facilitates a more comprehensive representation of the informants' (users') social reality beyond what is explicitly stated. On the other hand, incorporating narrative awareness into the use case or scenario analysis supports more nuanced understanding of how narrative elements influenced the illustration.

Incorporating narrative awareness into requirements elicitation methods holds potential to gain more comprehensive requirements by taking into account the informants' social and subjective realities. This is crucial in the ISD where the requirements guide the entire development process and shape the final system (Siau et al., 2022).

Beyond specific techniques, we emphasise the analysts' abilities to acquire deep understanding of narratives. the analysts have a central role in understanding and addressing the intricate social aspects of requirements elicitation. Therefore, we propose that the analysts should receive training to critically address narratives from various stakeholders, including users, developers, and themselves. This shift towards tackling the social challenges enhances the analysts' abilities to address the users' needs and contribute to the success of ISD projects (Siau et al. 2022).

CONCLUSION

This paper discusses narrative characteristics in the top IS literature on requirements elicitation. We adopted narrative theoretical insights to view a set of narrative elements through an analytical lens. Our literature review shows strong support for the presence of narrative characteristics in requirements elicitation. Thus, we argue that requirements elicitation is contextually tied to the co-production and interpretation of narratives. We propose narrative theoretical ideas are a fruitful approach for requirements elicitation research and practice. This enables requirements elicitation to bridge a well-witnessed communication gap that produces unsatisfactory systems by avoiding the simplification or ignorance of a complex socially constructed situation. Our literature review points out the need to strengthen the theorisation of requirements elicitation as a narrative activity and to identify practical examples of the narratives. We urge more comprehensive approaches to narratives. Simple stories often simplify narratives. This may lead to incorrect requirements where, for example, the context, the users and their diversities, assumptions, values, and experiences, are ignored. The influence of narratives ranges from how individuals perceive the world to the same individuals sharing their interpretations with stories and then to how others understand the stories and tell them.

This study has some limitations. First, it only reviewed articles published in major IS journals and in a requirement engineering–specific journal, *Requirements Engineering*. The perspective is thus somehow limited. Yet, as our intention was not to review all the possible literature but to capture the central IS research on requirements elicitation. This literature represents top quality research and the main discussions in the field, consequently adequately telling the main trends in the field. Second,

our research approach is interpretivism, meaning that the findings are based on the researchers' interpretations. Moreover, they are primarily implicit since no direct references to narrative theories were found. Thus, misinterpretations are possible. To avoid this, we constantly discussed the findings among the authors, and tried to make the study as transparent as possible.

Our contribution is the illustration of narrative characteristics in the requirements elicitation literature. They appear widely but indirectly in the literature, and only some of their characteristics are addressed. However, narrative theorists argue for applying a comprehensive approach to narratives no matter where they occur. We thus propose future research avenues where narrative characteristics can be considered more inclusively. We argue that instead of dismissing the narratives and considering them *messy*, they should be seen as complex, rich and informative forms of communication. Since this stance has mostly been ignored in the IS literature, there seem also to be the lack of awareness regarding the narrative theorists' lessons. We thus argue that the ISD field should learn how to better understand the users and their tacit and embedded information from the narratives, and then consider for example, how the analysts could step into the users' shoes (c.f. Beimel & Kedmi-Shahar, 2019). The narrative theoretical discussion argues that instead of only considering what is explicitly said, the focus should be on comprehensively understanding what is being conveyed. Adopting the narrative lens directs the attention towards the occasion of telling. Instead of seeing requirements elicitation as a one-way information channel, it should be seen as a co-production of narratives, inherently tied to a specific context. This emphasises the acknowledgement of the interference and influence of all participants.

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APPENDIX

Table 7.

Article	Appr.	Cult & Org	Interact	Analyst	Cogn.	Exp	Abil.	Assump.	Motiv.	RS	Percept	MMs	MFs	Num.
(Al-Karaghouli et al., 2000)	X		X					X						3
(Alsanoosy et al., 2019)		X			X				X	X				4
(Appan & Browne, 2010)	X		X	X	X				X					5
(Appan & Browne, 2012)	X		X	X	X	X			X		X		X	8
(Bano et al., 2019)			X	X	X	X								4
(Beimel & Kedmi-Shahar, 2019)	X			X		X						X		4
(Bjarnason & Sharp, 2017)	X		X		X	X								4
(Browne & Parsons, 2012)					X			X						2
(Browne & Rogich, 2001)	X		X	X	X							X		5
(Byrd et al., 1992)	X		X	X	X	X	X				X			7
(Chakraborty et al., 2010)		X	X	X	X		X			X			X	7
(Cooper, 2000)	X	X			X	X			X					5
(Coughlan & Macredie, 2002)	X		X	X	X					X				5
(Darke & Shanks, 1997)	X		X	X	X		X				X			6
(Davidson, 2002)			X	X	X			X					X	5
(De & Sen, 1984)	X				X			X			X			4
(Ferrari et al., 2016)			X	X	X		X		X	X		X		7
(Ferrari et al., 2022)	X		X	X	X		X							5
(Fuentes-Fernández et al., 2009)	X		X			X								3
(Hadar et al., 2014)	X			X	X	X		X				X		6
(Hanisch & Corbitt, 2007)	X	X	X		X					X				5
(Hickey & Davis, 2004)	X	X		X	X	X	X	X	X		X			9
(Holmström & Sawyer, 2011)	X	X	X	X		X	X	X			X			8
(Hughes & Wood-Harper, 1999)	X			X			X							3
(Jia & Capretz, 2018)	X	X							X			X		4
(Kirsch & Haney, 2006)	X	X	X	X			X				X			6
(Klendauer et al., 2012)			X	X			X							3
(Lauesen & Kuhail, 2012)	X													1
(Liou & Chen, 1993)	X		X			X					X			4
(Maier & Berry, 2018)	X			X			X							3
(Majchrzak et al., 2005)	X	X				X				X				4
(Marakas & Elam, 1998)	X		X	X	X		X				X			6
(Milne & Maiden, 2012)		X			X				X	X				4
(Montazemi & Conrath, 1986)	X	X	X		X	X						X		6
(Moody et al., 1998)	X			X	X									3

Table 7. Continued

Article	Appr.	Cult & Org	Interact	Analyst	Cogn.	Exp	Abil.	Assump.	Motiv.	RS	Percept	MMs	MFs	Num.
(Palomeres et al., 2022)					X	X	X							3
(Pitts & Browne, 2004)				X	X	X	X							4
(Pitts & Browne, 2007)	X			X	X	X	X							5
(Pitula & Radhakrishnan, 2011)	X	X			X	X								4
(Ramesh et al., 2010)	X	X	X	X	X		X		X	X	X			9
(Rosenkranz et al., 2013)	X		X		X						X	X		5
(Rosenkranz et al., 2014)			X	X	X		X				X		X	6
(Sakthivel, 1991)	X													1
(Schenk et al., 1998)	X			X	X	X	X		X					6
(Sutcliffe et al., 1999)		X	X	X			X	X						5
(Sutcliffe et al., 2011)	X		X											2
(Sutton, 2000)			X		X									2
(Thanasankit, 2002)	X	X	X											3
(Thew & Sutcliffe, 2017)	X				X									2
(Tuunanen & Peffers, 2018)	X	X					X		X			X		5
(Urquhart, 2012)		X	X	X		X	X	X	X	X	X			9
(Vessey & Conger, 1993)					X	X						X		3
(Vidgen, 1997)	X			X							X			3
(Vitalari, 1985)				X										1
(Vitharana et al., 2016)	X			X	X	X						X		5
(Wahbeh et al., 2019)	X		X	X		X	X							5
(Watson & Frolick, 1993)	X				X									2
(Westrup, 1999)	X													1
(Wetherbe, 1991)	X			X	X									3
(Zappavigna & Patrick, 2010)	X		X	X	X									4
(Zmud et al., 1993)	X				X							X		3
61	45	17	31	35	39	22	21	9	11	10	14	11	4	269

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