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Ekaterina Jussupow
Technical University of Darmstadt, ekaterina.jussupow@tu-darmstadt.de

Fumi Kurihara
University of St. Gallen, fumi.kurihara@unisg.ch

Annamina Rieder
Simon Fraser University, annamina_rieder@sfu.ca

Magnus Schueckes
University of Mannheim, schueckes@bwl.uni-mannheim.de

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Forming Professional and IT Identities: A Longitudinal Case Study of Using an Information System for Blended Psychotherapy

Completed Research Paper

Ekaterina Jussupow
Technical University of Darmstadt
ekaterina.jussupow@tu-darmstadt.de

Fumi Kurihara
University of St. Gallen
fumi.kurihara@unisg.ch

Annamina Rieder
Simon Fraser University
annamina_rieder@sfu.ca

Magnus Schueckes
University of Mannheim
schueckes@bwl.uni-mannheim.de

Abstract

Focusing on novice psychotherapists who use an information system supporting their therapeutic work, this study investigates the interaction between the formation of a professional identity and an IT identity. We conducted 30 semi-structured narrative interviews in a two-year-long data collection with psychotherapists in Germany at the early stages of their training in cognitive behavioral therapy using "elona therapy," a certified digital health solution for blended psychotherapy. Following the grounded theory methodology, we identified three relationships between IT identity and psychotherapists' professional identity: IT identity can function as a reassurance for the nascent professional identity; IT identity evokes tensions in the nascent professional identity; and IT identity and professional identity co-develop in an interdependent way. Our findings provide significant theoretical insights into the relationship between these two separate but important types of identities related to information systems use by a group of professionals who have little digital support in their work.

Keywords: Professional identity, IT identity, psychotherapy, IS use, digital health

Introduction

In the context of professionals' information systems use, two distinct forms of identity are often treated as separate but interrelated constructs. On the one hand, literature considers *professional identity* as how professionals define their roles and membership in a professional group (Chreim et al., 2007; Vaast & Pinsonneault, 2021). In this literature, information systems are often perceived to enhance and threaten professional identities (see Boonstra, 2022; Lamb & Davidson, 2005; Stein et al., 2015; Vaast & Pinsonneault, 2021). When an information system is perceived as a threat to one's professional identity, professionals are more likely to develop negative attitudes toward the new system and thus resist its implementation (Jussupow et al., 2022; Lapointe & Rivard, 2005; Mishra et al., 2012). Whether information systems are seen as potential threats or supporting instruments to one's professional identity, professionals are forced to engage in identity work, or the process of "forming, repairing, maintaining, strengthening or revising" their professional identities (Sveningsson & Alvesson, 2003, p.1165). To use one example, introducing a substitute decision-making artificial intelligence system challenged the professional identity of experienced consultants (Strich et al., 2021). To protect their professional identities, the experienced consultants engaged in identity work by manipulating the data to outsmart the system or using

additional information provided by the system to focus on advising their clients with foresight (Ibid.). Other identity work processes include reinterpreting the meaning of one's professional identity (Vaast & Pinsonneault, 2021). On the other hand, research on *IT identity* considers how professionals form their identity in relation to a specific information system, i.e., "the extent to which a person views the use of an IT as integral to his or her sense of self" (Carter & Grover, 2015, p.932). Thereby, IT is an embedded, integral part of an individual's identity. A strong IT identity is associated with a more creative use of information systems and long-term use of specific features (Carter et al., 2020). Prior research considered professional identity and IT identity as separate but related constructs. For example, Vaast & Pinsonneault (2021) argue that in occupations where information systems are integral, IT identity can merge with occupational identity, resulting in the former overtaking the latter.

However, while prior studies primarily focused on professionals with established identities, we investigate how the development of a professional and IT identity can occur simultaneously in the case of novice professionals whose professional identities are still forming. Novices experience identity work differently from more established professionals. Novices engage in conflicts between their *ideal selves*, or expectations of how they should behave as professionals (Ahuja et al., 2019), and their current identity, i.e., their *provisional selves* or "trials for possible but not yet fully elaborated professional identities" (Ibarra, 1999, p.765). As novices must manage the tensions between these two selves, they may rely more heavily on the support of information systems to reinforce their identity (Chreim et al., 2007; Korica & Molloy, 2010; Lamb & Davidson, 2005; Strich et al., 2021). Thus, examining identity formation amongst novices offers unique insights into how both IT identity and professional identity can co-evolve.

This paper focuses on the context of novice psychotherapists' (hereafter therapists) use of a blended therapy solution. We focus specifically on therapists specialized in cognitive behavioral therapy (CBT) as this therapeutic approach is the most amenable to digital support due to its reliance on standardized manuals and exercises (Anderson et al., 2004). Novices in CBT training face two challenges. First, they must decide when to follow and deviate from the standardized manuals. Second, as therapists only receive feedback during their monthly therapy supervisions (Tripp et al., 2022), they lack role models from whom they can observe and learn during the therapy sessions (Ibarra, 1999) or obtain regular direct feedback. Without synchronous guidance, novice cognitive behavioral therapists may rely on information systems to better orient themselves. Hence, studying how new information systems intervene with the professional identity formation of therapists training in CBT, a context in which they must navigate the tension between preserving a personal therapeutic relationship with their patients while following a set of standardized exercises alone without direct feedback, makes it a compelling case.

Our exploratory research question asks: *How do novice psychotherapists' professional identity and IT identity develop as they use an information system supporting their psychotherapeutic work?*

We conducted 30 semi-structured narrative interviews with therapists at the early stages of their psychotherapeutic training using *elona therapy,* hereafter referred to as *elona*, the first German digital health app on prescription that supports therapists in treating depression (Elona Health GmbH, 2023). Applying the grounded theory methodology (Corbin & Strauss, 2008), we explore how each therapist's professional identity matured through their training and how their IT identity evolved simultaneously. We found that at the early stage of forming their professional and IT identities, the developing IT identities could reassure or challenge the therapists' developing professional identities. Later, at the stage in which the therapists' professional identities began to mature, we observed either an integration of the two identities resulting in a strong IT identity, or a strict separation of the two identities, resulting in the exclusion of IT from their therapeutic work.

Our contributions to scholarship are twofold. First, we contribute to the literature on IT identity (Carter et al., 2020) and the relationship between professional identity and information systems (Vaast & Pinsonneault, 2021) by specifying how professional identity formation can intertwine with the process of developing an IT identity. Second, we contribute to a better understanding of information systems use by therapists practicing psychotherapy, a professional group that has received little attention in information systems research. Finally, we contribute to practice by developing recommendations on the use of information systems in therapeutic work that consider the dynamics of professional identity formation.

Theoretical Background

Professional Identity

Identity is a set of meanings attached to a person by others and themselves based on the context they are in and the specific roles they occupy in a social structure (role identity), the groups they identify with and belong to (social identity), and the way they identify themselves as a unique person (person identity) (Burke & Stets, 2009). *Professional identity* is a form of social identity in professional contexts (Kyratsis et al., 2017) and is defined as "an individual's self-definition as a member of a profession and is associated with the enactment of a professional role" (Chreim et al., 2007, p.1515). The relationship between one's identity and enactment of roles is particularly strong for professionals in healthcare settings because they define themselves through their statements and actions both independently and in relation to other professionals, which also influences how they perceive and treat others (Reay et al., 2017). For example, physicians see themselves as orchestrators of care delivery in their role as care providers; thus, they view nurses, pharmacists, and technicians as assistants who carry out their instructions (Mishra et al., 2012).

Professional identities are not fixed. They are fluid and constantly evolving as contexts and people change (Brown, 2022; Gioia et al., 2010). Individuals hence engage in *identity work*, a process of "forming, repairing, maintaining, strengthening or revising" their identities (Sveningsson & Alvesson, 2003, p.1165). Professionals engage in identity work or restructure their identity when other approaches to dealing with identity threats are ineffective (Petriglieri, 2011). Professionals also engage in various forms of identity work depending on how established their professional identities are. Studies found professionals with more established professional identities, such as those holding senior positions, more resistant to change and build upon their established identities to maintain their professional identities (see Chreim et al., 2007; Goto, 2021; Korica & Molloy, 2010; Kyratsis et al., 2016; Lamb & Davidson, 2005). However, less established professionals, like novices, are more flexible to change and engage in various forms of identity work to form their professional identity (see Ahuja et al., 2019; Ibarra, 1999; Pratt et al., 2006; Tomer et al., 2016). Thereby, they actively seek reassurance and feedback for their professional identity from peers or supervisors and are open to exploring different professional roles. Given the greater influence of external sources in novices' identity formation and their increased susceptibility to change, this study aims to enrich the literature on identity formation among novices.

IT Identity

Over the years, the information systems discipline has examined the relationship between identity and information systems from various perspectives (see Carter & Grover, 2015, for a literature review on how the discipline studied identity). Many studies have treated information systems and identity as separate entities (Carter & Grover, 2015). However, Carter & Grover (2015) argue that individuals share the capacity to form identities in relation to the information system they frequently engage with as they acquire and internalize common expectations. Thus, they conceptualize *IT identity* as "the extent to which a person views the use of an IT as integral to his or her sense of self" (p.938). IT identity is driven by an individual's motivation to "expand the self" (Carter & Grover, 2015, p.940). Individuals try to boost their effectiveness through "increasing physical and social resources, perspectives, and identities that facilitate achievement of any [personal] goal that might arise" (Aron et al., 2003, p.478). However, this process does not exist in a vacuum; it is influenced by the social and cultural contexts the individual is in because they offer shared meanings and norms individuals incorporate into their identities (Burke, 2004).

IT identity is not immutable (Carter & Grover, 2015). In other words, IT identity can evolve over time. This development, however, is generally slow. As Carter & Grover (2015) explain, when an individual is eager to use a new information system through intense exploration and learning, their initial IT identity construction provides them with a chance to quickly expand the self (Aron et al., 2003). Once an IT identity is established, they seek self-continuity and conservation of emotional and cognitive resources by creating social environments that validate their pre-existing beliefs and feelings about themselves (Burke & Stets, 2009; Swann et al., 2005). This includes creating opportunity structures where their needs and self-perceptions are regularly met to reduce the effort spent on continually contrasting an identity standard, or a set of self-meanings an individual ascribes to themselves in a given situation (Burke & Stets, 2009). IT identity can be examined as a *medium* to enrich understanding of why and how people use information

systems; as a *determinant* to understand how people respond to and manage challenges to their existing self-concepts (see Carter et al., 2020); and as a *consequent* to explore how information systems influence self-change and changes in behavioral patterns among individuals.

Extant literature examining the relationship between IT identity and professional identity has focused on professions heavily influenced by information systems, such as data science, human resource management, and accounting (e.g., Stein et al., 2013; Vaast & Pinsonneault, 2021). These studies examined professionals whose work involves extensive use of information systems, where their professional identity is shaped more by the systems than from interactions with colleagues or clients. Therefore, their IT identity forms a core part of their professional identity. In our healthcare context, however, IT identity and professional identity are distinct. Information systems influence professionals' self-perceptions as competent professionals (Walsham, 1998), which are strongly defined through human interactions (e.g., patients and other healthcare professionals, Korica & Molloy, 2010; Mishra et al., 2012; Nach, 2015). Thus, in this study's setting, IT and professional identity can be two conflicting or complementary identities, leading to a dynamic relationship.

Information Systems Use During Professional Identity Formation

Introducing information systems into professional contexts has been found to influence professionals' identities. Literature observed that professionals' use of information systems and their identity work are closely intertwined. On the one hand, introducing a new information system may necessitate identity work. This can occur when information systems introduce benefits or challenges that alter work processes, driving professionals to engage in identity work to adapt and redefine their identities. For instance, while information and communication technology enabled natural scientists to make discoveries previously unattainable, it simultaneously challenged the scientists' perceived control over their scientific expertise, prompting them to shift their focus and expertise into another area for their profession to remain relevant (Lamb & Davidson, 2005). Vaast & Pinsonneault (2021) observed a similar phenomenon among data scientists who redefined their occupational identities to manage the tensions caused by new information technology that rendered their professions obsolete. Literature also found professionals engage in identity work to maintain their professional identities in relation to other actors in the same professional context as new information systems can shift intra- and inter-professional relationships (Korica & Molloy, 2010).

On the other hand, identity work can shape how professionals use information systems. For instance, Nach (2015) discovered that after a period of adjustment following initial conflict and negative emotions, surgeons shaped their professional identities in relation to the technology's capabilities, redefining themselves as active users of the information system in addition to their role as care providers. Strich et al. (2021) observed loan consultants protecting their professional identities against substitute decision-making artificial intelligence systems by manipulating the data to outsmart the system or focusing on enhancing certain elements of consulting services the information system cannot provide. Boudreau et al. (2014) found librarians using information systems through a process of sensemaking, where, through trial and error and engaging with their patrons, they began to see innovative ways to use and integrate them into their work, leading them to redefine their roles and identities. In fact, librarians developed an IT identity, which describes the extent to which certain individuals view the use of IT as integral to their sense of self (Carter & Grover, 2015; Carter et al., 2020). Moreover, research found that during their identity formation, professionals use IT artifacts as landmarks to enact preferred professional identities, explaining why different employees in the same company may use the same information system in various ways (Stein et al., 2013). Overall, these findings suggest that new information systems can challenge *established* professional identities, and information systems use co-evolves with professionals' identity work.

Few studies have explored how professionals whose identities are still in their formation processes, namely identities of *novices*, use information systems. Novices such as students and junior professionals engage in identity work in two distinct ways: First, novices' identities may be considered *provisional* or "trials for possible but not yet fully elaborated professional identities" (Ibarra, 1999, p.765). During this trial phase, novices try on various identities borrowed from observing role models to determine which ones to adopt. The extent to which they experiment with provisional selves and the outcome of this phase is influenced by how strong one's current professional identity is (see Pratt et al., 2006). Second, novices build their identity upon an image of an *ideal self,* which describes their expectations of how they should behave as a professional (Ahuja et al., 2019). Studies found novices modify certain aspects of their identities due to

work-identity conflicts arising from a mismatch between their initial understanding of what their professional identity entails and the actual work they end up doing (Tomer et al., 2016). As novices need to manage the tension between the *ideal self* and the *provisional self*, they may rely more on information systems to seek support in forming their professional identities. In this sense, information systems serve as an additional feedback channel in the process of forming their professional identities. Extant literature further indicates novices are more open to using information systems than established professionals (see Korica & Molloy, 2010; Lamb & Davidson, 2005). Hence, novices may use information systems in novel and possibly unexpected ways during their identity formation, and information systems may intervene with their identity work in unique ways.

This study examines the identity formation of therapists in the context of psychotherapy. Therapists form their identities through a dedicated period of formal training that is critical to the development of their therapeutic attitudes, values, and roles (Carlsson et al., 2011), and the enactment of their professional identity through patient interactions. Their training includes monthly therapy supervision during which a supervisor, typically more senior, provides feedback (Tripp et al., 2022). These supervisions are crucial in the process of "making" therapists and developing their identity as therapists (Watkins, 1998; 2020). However, as these supervisions are monthly, therapists lack role models from whom they can observe and learn during the therapy sessions (Ibarra, 1999) or obtain regular direct feedback. In other words, therapists must navigate the therapy sessions on their own. Therapists training in CBT face an additional challenge. CBT is a therapeutic approach that uses evidence-based, standardized treatment manuals to help patients identify cognitive and behavioral patterns causing their mental disorders (Terjesen et al., 2022). Novices in CBT training face the challenge of deciding when to follow the standardized manuals and when to deviate from them. Thus, in the absence of synchronous guidance from role models and uncertainty about when and how to use the manuals, novice cognitive behavioral therapists may rely on information systems to better orient themselves.

This paper explores how novice cognitive behavioral therapists form their identities with the intervention of information systems, specifically a blended therapy solution. Blended therapy is a form of psychotherapy that combines face-to-face therapy with internet- and mobile-based interventions (Baumeister et al., 2020). It is considered promising for improving psychotherapy as it provides additional support to patient treatment without replacing the therapists' relational work (Baumeister et al., 2020). While there are several approaches to blended therapy (e.g., adjunct, sequential), therapists prefer approaches that allow them to select therapeutic materials for their patients who can then apply them in their daily lives. Studies reveal that because therapists can better define and personalize exercises to a specific patient, disorder, and therapeutic process, blended therapy can increase patients' self-management, foster a more independent patient-therapist relationship, and improve the overall quality of therapeutic care (Fitzpatrick et al., 2018; Mathiasen et al., 2016; van der Vaart, 2014). However, the impact of a blended therapy solution on patients' mental health strongly depends on whether and how therapists use the specific solution to assign specific materials and exercises. For novice cognitive behavioral therapists who face numerous challenges, integrating such a solution into their work may intervene in their current identity formation process by creating (further) tensions between their provisional and ideal selves, and/or providing feedback to the provisional self, thereby further maturing their professional identity.

Method

Case Context

Our case context emerged through a collaboration with Elona Health GmbH, a start-up team in Germany that developed a blended therapy solution for outpatient therapy, *elona*. *Elona* seeks to improve the overall efficiency of therapeutic work by providing patients with additional therapeutic content outside face-to-face sessions to support their behavior changes in their daily lives; lessening therapists' workload by reducing paper-heavy procedures; and increasing job satisfaction through more patient compliance with exercises (Elona Health GmbH, 2023). The application includes over 400 therapeutic interventions (e.g., exercises, psychoeducational materials, surveys) from evidence-based manuals and standardized surveys that therapists can assign to their patients. Patients can use their smartphones to assess their daily mood, keep a private diary, complete exercises their therapists assign them, and read materials (e.g., video, text-based) about their mental disorder. Therapists can schedule appointments, manage their waiting lists, assign

materials and unlock exercises suggested by *elona*, and visit a dashboard where they can view the patients' moods or check whether they completed their assignments. Not all information, such as the patients' diaries, is shared with the therapists. In fall 2021, the company used *elona* in a feasibility trial to treat students with elevated levels of depression and anxiety, followed by a randomized control trial in early 2022 to compare the treatment of patients with depression and anxiety disorders. The first interviews for this study were conducted during the randomized control trial to investigate how psychotherapists use *elona*.

Germany's psychotherapy training has several distinct components. First, therapists must complete their university degree in psychology before beginning a three-year (full-time) to five-year (part-time) professional training that includes theoretical education in small groups (600 hours), working as a therapist, and intensive supervision by experienced therapists. Therapists are required to work 1,800 hours in an inpatient setting and conduct 600 hours of therapeutic sessions under supervision, often in an outpatient setting (Tripp et al., 2022). Therapists can conduct sessions in an outpatient setting only after passing an intermediate exam. Despite not being fully licensed, many therapists in training perform independent therapy sessions already during their inpatient training due to shortages of available therapists. Therapists finish their training with in-depth patient reports and a final exam.

Data Collection

We conducted 30 semi-structured narrative interviews with novice therapists at the early stages of their training for two years (see Table 1 in the Appendix for an overview of the interviewed therapists). During the first interview, most novices had just begun their outpatient training. Two authors conducted the interviews in German in-person and online. The interviews include three pre-use interviews with therapists involved in developing *elona* to understand how therapists generally approach a therapeutic session and what expectations therapists have towards using *elona* as a blended therapy solution (INT1, INT4, and INT17). These pre-use interviews were used to develop an interview guide. INT17 was the only experienced therapist in the sample, and their interview was only used for triangulation. We then conducted 14 interviews with novice therapists during the use of *elona* in the randomized control trial with patients diagnosed with major depression and anxiety (INT1 to INT14). Amongst others, we asked them questions such as "How have you been using *elona?*", "Which features are you (not) using?", "What and how has *elona* changed the way you work?", and "How has your self-image as a therapist changed through the use of *elona*?" Each interview lasted between 30 minutes to one hour, averaging 40 minutes. Interviews were conducted from August 2021 (pre-use) to fall 2022. No interviews were conducted with the control group. Thus, all our interviews were conducted with early adopters. One year later, in spring 2023, we interviewed 11 of these 14 novice therapists a second time (except INT2, INT5, INT7, INT9), in which we explicitly asked them about the development of their career and changes in their use of *elona*. Furthermore, we acquired additional data through a series of rigorous informal workshops and discussions with Elona Health's CEO and CTO, a field visit in 2023, additional materials collected by the research team regarding the therapists' feedback, and two additional interviews with therapists involved in the development of *elona* in Spring 2023 (INT15 and INT16). These two additional interviews and sessions provided insights into how the development team incorporates the therapists' feedback and decides how to change the application or the onboarding process.

Data Analysis

We followed Corbin & Strauss' (2008) procedure for interpretive data analysis (see Table 2 in the Appendix). In three steps, we (1) inductively coded for therapists' *use patterns,* i.e., which features they used or decided not to use, how they integrated *elona* into the therapeutic process, and how their usage changed from the first to the second interview; (2) abductively coded for instances in which therapists reflected about their professional and IT identity, and (3) aggregated patterns of *elona's* role and entanglement in the formation of a professional and IT identity. As articulated in the grounded theory literature, these steps were not perfectly sequential. To triangulate, two of the authors iteratively coded and frequently discussed the concepts, linkages, and aggregations; the third author was involved in the data analysis for plausibility checks and to ensure the abductive coding step was aligned with the theory (Wallendorf & Belk, 1989).

In an open coding step, we analyzed the data on a sentence-to-sentence basis, applying different open codes. In this process, we realized that it is necessary to distinguish between activities that therapists performed

as they used *elona* and the entanglement of the information system use in the formation of their professional identity and IT identity. For example, as therapists used the dashboard to see which assignment they provided to their patients, they quickly realized that this feature challenged their role as therapists as they could now monitor their patients, and patients knew that they could be monitored. We decided to code these instances into different theoretical categories. First, we focused on how the usage of *elona* developed, what features were used (or not used), and when the application was used. In the above-described example, this refers to the feature usage of the dashboard. We summarized this under the general category usage patterns (first theoretical code, Table 2 in the Appendix). Next, we incorporated our theoretical perspective and differentiated between how therapists developed an IT identity (second theoretical code, Table 2 in the Appendix) and their professional identity (third theoretical code, Table 2 in the Appendix). For these two categories, we used concepts from existing literature. Expressly, we understand *IT identity* as identification with the information system, in this case with *elona* (Carter & Grover, 2015), and professional identity formation as a dynamic identity work process between the therapists' *ideal self*, i.e., their expectations of how one should behave as professionals (Ahuja et al., 2019) and their *identity enactment, i.e.,* enacting, or acting out, a particular role or self-concept (Beyer & Hannah, 2002; Chreim et al., 2007). We then combined different descriptive codes related to the formation of IT identity and professional identity into specific categories, which are below the theoretical codes. For example, we differentiated whether therapists explicitly referred to an IT identity and thus this identity was clear and mature, or whether their IT identity was more implicit. We also allocated statements that described a symbolic meaning to *elona* under the theoretical code of formation of an IT identity. A symbolic meaning goes beyond a mere description of what specific features the therapists used. Instead, it relates to statements that describe the sensemaking process of individual therapists and account for the meaning of the information system for individual therapists. For example, *elona* was perceived as a source of inspiration, for gaining confidence, or offloading tasks. Under the third theoretical code (the process of forming a professional identity), we summarized instances in which therapists described their ideal self and mentioned tensions they experienced between their professional and ideal selves. In the above-mentioned example of the feature use of the dashboard, we see that the monitoring feature created an identity tension for therapists as they must now consider whether monitoring patients can align with their professional identity. We then developed patterns that describe the interaction between these three theoretical codes through visualizations and multiple rounds of pattern matching. As this coding process was performed iteratively, the data was coded and re-coded numerous times.

Findings

In the following, we report three key patterns from the data analysis that illustrate the complexity of the interaction between the therapists' professional identity and the development of their IT identity: **(1)** IT identity as reassurance for a nascent professional identity; **(2)** IT identity as a source of tension in developing an IT identity; and **(3)** Co-development of IT and professional identity. We elaborate on them in the following section.

Pattern 1: IT Identity as Reassurance for a Nascent Professional Identity

In the first round of interviews, novices who were still in the beginning of forming their professional identity often referred to different patterns of reassurance they obtained from using *elona*. In this phase, therapists searched for structure and support in their psychotherapeutic role because they felt unsure about which interventions to apply and medical guidelines to follow. Therapists focused on their ideal selves and described their ideal roles as therapists as accompanying patients and supporting them on their healing journey. While recognizing that their current professional identity, i.e., the provisional selves, deviated from this idealized view, they frequently attributed this discrepancy to a lack of experience and knowledge. On an identity enactment level, therapists specifically expressed insecurities in taking a more active vs. reactive role as a therapist and selecting appropriate content for specific situations and therapy phases. One therapist described the challenges and insecurity they faced at the start of their career and *elona*'s supporting role in this phase: *"[When I got elona] I was at the beginning of my outpatient phase which is always a very stressful time because all of a sudden, you are completely on your own and responsible for your own patients. But up to this point, no one taught you how to structure [therapy sessions] during the formal training. So, I liked elona because at least it gave me a collection of exercises that were already*

assigned to specific disorders. Almost all of my patients have depression – Great! I have a starting point. It gave me a lot of security at the beginning. I think I was more secure with the patients. It gave me the feeling that what I am doing there is fine because someone has at least looked over it before." (INT3)

Therapists also perceived *elona* to be helpful as it provided actionable suggestions and inspiration for the structure and content of their sessions and the overall therapeutic process. For example, when they lacked a suitable exercise for patients to complete between sessions, they consulted *elona* for guidance and relied on the structure that it provided. In addition to providing them with inspiration, therapists described *elona* as an instance that gave them implicit feedback about the purposefulness and scientific grounding of their therapeutic decisions, similar to a coach or mentor. Fearing they were too unstructured, some therapists used it as reassurance to double-check whether their approach was in line with the scientific consensus. While they reported a positive impact on their relationship with the patients, these feedback and confirmation loops affected therapists' self-perception, such as their credibility or professionalism. Thus, using *elona* helped them redefine and update their provisional identity, thereby reducing the gap between their provisional and ideal selves. An interviewee explained how they incorporated *elona's* implicit approval of their treatment choices to update their professional identity: *"[Elona] underpins my professionalism in the sense that [patients will think] 'Mrs. [last name] didn't invent all of this. It's actually also written in this app.' This provides me with security. I can imagine that for therapists who really just started, that effect is even more intense—and it's not that I am that experienced. But I think the longer you have been working as a therapist, the more consolidated these roles are."* (INT12)

While developing their professional identities, the therapists strongly integrated *elona* into their therapy process, forming an IT identity in relation to *elona*. Although not all therapists used the same feature sets, it was common for them to regularly use a broad range of features across various patients and disorders. They would consult *elona* for guidance with structuring the sessions, the time between sessions, and the overall treatment, including finding appropriate content. In this regard, *Elona* functioned as a kind of quality assurance or reassurance check to provide therapists with final approval on whether or not what they were doing was right and how to approach similar problems in the future. An interviewee described using *elona* to review their treatment of patients with whom they had not been using *elona*: *"Some of the patients came later, so I had completed the first part of the treatment freely. But it was still helpful to look at [what elona suggested for the treatment] retrospectively and take it as a suggestion: What can I give them now that we're almost at the end, or how? What would be a suitable approach to start with the next time?"* (INT8)

Pattern 2: IT Identity as a Source of Tension in Developing a Professional Identity

Developing an IT identity caused tensions with the developing professional identity as therapists needed to reflect on their role and the enactment of their professional identity through specific work practices. For instance, therapists perceived some features or aspects of *elona* as conflicting with their values, principles, therapeutic approaches, or personal convictions (their ideal self of a therapist). For example, *elona* offers the possibility of monitoring patients' progress. Especially in the early stages of developing their professional identities, therapists reflected on how they used or did not use this specific feature. An interviewee explained how using features that allow therapists to see patients' progress in a dashboard directly conflicted with their professional self-understanding: *"I didn't check [patients' compliance]. I am a therapist (in the sense of) Rosenberg [a US-American social psychologist] building on self-responsibility. Self-efficacy can only be turned into self-esteem if one has really completed a task oneself. I hand over a lot of responsibility to my clients [patients]. I tell them it is evidence-based, proven to be helpful to protocol their mood and activities. It gives them a better overview; to know where they should focus on. I am not the kind of therapist who would ask, 'Show me your protocol—how does it look? Did you complete your homework?'"* (INT14)

For most therapists, the identity formation process was dual in nature. On the one hand, they reinforced their identity by utilizing aspects of *elona* they could easily align with their identity. For example, despite experiencing tensions, therapists recognized common ground with their philosophy that a therapist's role is to support patients in acquiring self-efficacy and *elona*'s objective and usefulness in supporting self-efficacious action between therapy sessions. They used this input to reinforce their understanding of their professional identity. One interviewee outlined how *elona* corroborated their identification with a more teaching-focused role: *"I realized that there is this aspect of being—almost like a teacher—which this tool*

conveyed, that I am not only a therapist and support someone at the relational level, but also have the job to teach someone knowledge. A lot is actually about teaching and transferring knowledge, also for the patients. That's what elona spelled out, I believe." (INT6)

On the other hand, when aspects of *elona* were not reconcilable with their identity, therapists refused them to interfere with their identity. For instance, therapists who valued their autonomy and explicitly desired an intuitive approach to therapy refused *elona*'s structured approach to change their role as therapists and their approach to therapy. One therapist reported that some of *elona*'s features, which afforded monitoring patient compliance with the tasks assigned to them, clashed with their professional identity and conviction that therapy should be built on self-responsibility (see INT14 above).

Based on this dual structure of the identity work, therapists integrated selective feature sets of *elona* for specific circumstances and use cases and decided not to use other features. In other words, the system's features and uses that did not align with their professional identity and thus refused to inform professional identity were ignored. In contrast, features that reinforced their identities because they aligned with their ideal self were integrated at the identity enactment level and became a fixed part of the therapeutic process. In fact, therapists heavily relied on these features and used them as a fixed instance, becoming deeply entangled and regularly extending the therapeutic process. The same therapist who refused to monitor their patients described how, in the early phases of therapy, they selectively used *elona* to systematically outsource psycho-educative content to *elona* to complement the therapy sessions: *"What I enjoy about working with elona is the possibility to communicate less about psychoeducation during the sessions, but to cross-reference. I had a patient with a depressive disorder, long-term sick leave, mental overload, then reintegration in the job. [The] sessions were often about how this is going to work out, how not to overcharge oneself in one's energy resources. So it was super to talk with him about everyday life, his fears, worries related to the reintegration. Plus, in between sessions, complementing that with specific psycho-educative content that is of course more general in nature, that's not about his job or conflicts with his subordinates or his superiors. So it felt good to have more effective time during sessions to talk about his individual situation and not use time on something that is less tailored."* (INT14)

Pattern 3: Co-Development of IT and Professional Identity

In the long term, we identified different patterns of how the IT identity developed and aligned with the therapists' professional identities. For example, through repeated interaction with *elona,* using information systems support for psychotherapy became a fundamental element of their self-understanding as therapists. One therapist reflected that the IT identity was now an integrated part of their professional identity and thus a logical result of their continuous use of *elona*: *"I feel like being on cutting edge if I use elona […] So, that I, as a therapist, can show once again [to my patients], 'Your well-being and your progress in therapy are particularly close to my heart.' That's why I incorporate everything we can get… Now there is this cool new thing that you can use on your mobile phone. And, it has been seen that this increased therapy satisfaction and made it easier for people to work therapeutically. Of course, I can show off a bit with that. (…) It just makes a good impression on patients."* (INT12*)*

Others found ways to tailor the use of *elona* to their professional role. For example, one therapist reported sending additional SMS reminders for patients to continue working with *elona* after they checked the dashboard and saw their patients had not completed the exercises. This new channel of communication with patients has only evolved after one year of use and aligned with this therapist's more mature professional identity as someone who wants to help patients adhere to treatment plans and does not mind monitoring their progress. This expanded this therapist's original working model by seeing *elona* as an extension of their professional work as a second therapeutic system.

Others reflected how, as their professional identity matured, their IT identity developed in the opposite direction. Specifically, they identified as therapists who value working the analog way without the support of information systems (anti-IT-identity). As the psychotherapeutic identity was still in formation, therapists were also strongly influenced by patient feedback. For instance, if patients preferred using a book, they shifted their approach and recommended a book to new patients. As a result, they also perceived the analog book as part of their therapeutic approach and rejected including information systems into the process: *"Many have a book, a therapy book, where things are written down. And that is exactly where I*

always received much better feedback from the patients. (…) Uh (during the last year), I saw, (that) many (patients) also did not like to write into (elona) but preferred to write in the book instead." (INT10)

Others refused to give *elona* the power to update their professional identity and thus did not develop an IT identity. These therapists refrained from assigning *elona* a specific role in the therapeutic process at the enactment level. They kept *elona* in their methodological toolbox as an option, just like any other tool, such as paper-based exercises, manuals, or other mobile applications. An interviewee described what *elona* meant to them as a tool and its supporting role in the therapy process: *"Well, in the end, elona is a tool for me that I use. It's a choice, a possibility for action, but it's also relatively negligible in its impact. Depending on how one is working therapeutically, for example, one is using body-mind exercises where one includes the body and that's an area that is not being addressed by elona at all. That's not meant as a critique, but what I am trying to say is that it is just an additional tool which I can use and which hopefully helps me to be more effective or to add some value as a therapist."* (INT5)

Discussion

Summary and Theoretical Model

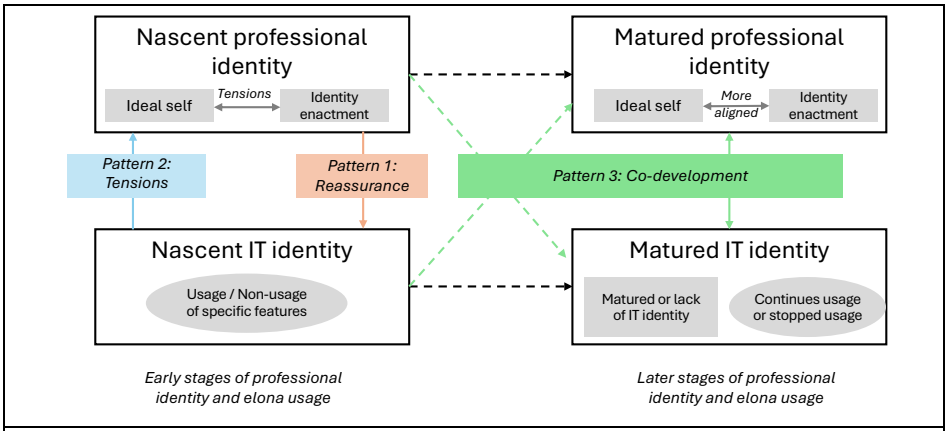


Figure 1. Interaction Between Professional Identity Formation and the Formation of an IT Identity

Our findings reveal how the professional identity formation process interacts with the development of an IT identity (see Figure 1). We found this process unfolded in two phases: as both identities were nascent, the IT identity could serve both as a reassurance and challenge to the professional identity. As therapists resolved these tensions, the IT identity and professional identity co-evolved into different interdependent relationships, influenced by how the nascent IT and professional identity matured (green lines). For some therapists, these two identities were integrated and a strong IT identity developed simultaneously with a more mature professional identity. For others, these two identities were kept separate, resulting in the exclusion of information systems use from their professional work or the development of an anti-IT-identity as an analog-working therapist.

Theoretical Implications

Our main theoretical contribution is to the literature on the influence of information systems on professional identity. We demonstrate how entangled information systems use can be to the identity work of novices who are still in the process of developing their professional identity. We show that novice therapists experience different tensions to their professional identity, evoked by both the use of *elona* and independent of it. However, even as the tensions are more strongly related to the enactment of their professional role in specific therapeutic sessions (see Section 4.2), novices still interpret these tensions from an identity work perspective, often resulting in changing and adjusting their professional identity. This makes the process of identity formation theoretically distinct from identity work activities of more

established professionals because the process of identity work for novices is not about perceiving information systems as threatening or enhancing their established professional identities (Jussupow et al., 2022; Lamb & Davidson, 2005; Lapointe & Rivard, 2005; Mishra et al., 2012; Vaast & Pinsonneault, 2021), but rather about aligning their professional identity with the development of an IT identity. Therefore, our study considers IT identity not only from a personal perspective but also from a social perspective (Carter & Grover, 2015), as therapists' professional identity and IT identity are also formed through the feedback they receive from patients about their information systems use.

Furthermore, unlike professionals with more established identities (see Petriglieri, 2011), we observed that novices engaged in more identity work, particularly in questioning their provisional identity. Thus, as described by Carter & Grover's concept of IT identity (2015), information systems not only become an integrated part of the self, but it is also evaluated and compared against the formation of the professional self, which is the outcome of the tension between the ideal and provisional self. In addition, particularly in the absence of direct role models and feedback, information systems can serve as a feedback mechanism for novices to calibrate their professional identity and assess their performance. Due to the strong entanglement between IT identity and novices' professional identities, introducing new information systems may make novices feel more secure. As a result, we see novices depending on *elona* for reassurance. This finding is consistent with other studies on information systems and identity work, such as the work of Strich et al. (2021), who demonstrated that the "less qualified" felt more empowered with new artificial intelligence systems, or Daskalopoulou et al. (2019) who found physicians relied on mobile applications like "cheat sheets" to feel more secure in their professional role. Given the various types of entanglement between professional identity formation and IT identity, our study shows not all novices respond uniformly to the introduction of new information systems. A closer examination of professional identity formation is required to better understand the relationship between the self and the information system (Carter & Grover, 2015). Future research exploring the implications of information systems use on professional identity should distinguish between different stages of identity work and consider identity formation as a distinct form of identity work.

Second, our study examines information systems use by a professional group that has not received sufficient attention. Extant studies on new information systems in healthcare have mainly focused on groups of medical professionals with a strong professional identity in inpatient settings, such as physicians, nurses, and surgeons (see Korica & Molloy, 2010; Lapointe & Rivard, 2005; Mishra et al., 2012; Nach, 2015). Our study focuses on an underrepresented group of healthcare professionals: psychotherapists. In contrast to the other medical professions, the work of therapists practicing psychotherapy is highly qualitative and relational. Hence, their work is considered to be less affected by automation and digital advancement. Moreover, most studies in healthcare contexts investigated information systems such as electronic health records systems (Boonstra et al., 2022; Mishra et al., 2012; Nach, 2015) or aids in specific practices like surgery (Korica & Molloy, 2010). By exploring a context such as psychotherapy where new information systems cannot replace the main work of the therapist and care must be tailored to each patient, we show how information systems can enter the relationship between therapists and patients and influence the professional identity of therapists. The context of psychotherapy is unique as it has not yet seen as many digital tools innovating the core task of psychotherapy, thus necessitating adaptations in the therapists' therapeutic relationship with their patients. Nevertheless, with the increasing digitalization of the self and the ongoing prevalence of mental health issues, this context requires a closer examination due to the implications of information systems use for patient health.

Practical Implications

Our findings have important implications for practice. Therapists are the gatekeepers of blended therapy solutions. Despite studies underscoring the potential of blended therapy solutions to improve psychotherapy effectiveness, existing literature suggests that therapists are hesitant to integrate them into their practices (Baumeister et al., 2020; Schuster et al., 2018). The reasons for their hesitation vary. Prior studies found different therapeutic approaches influence adoption decisions, with lower acceptance rates for depth psychologists and higher acceptance rates for psychodynamic therapists (Baumeister et al., 2020).

Our study provides a more nuanced perspective on the role of therapists in the adoption of blended therapy solutions that can inform both therapists and developers. Specifically, we highlight the importance of considering the co-development between IT identity and the professional identity of therapists. For

instance, a blended therapy solution can help less structured therapists feel more structured in their approach, use more evidence-based exercises, and be an important source of feedback. For these therapists, integrating a blended therapy solution early in the identity formation process can significantly impact the quality of psychotherapy. If a blended therapy solution provides enough structure to support the therapists' search for relevant therapeutic materials, novice therapists will be able to use the information system in accordance with their professional identity. These therapists might also be open to receiving more guidance and data-driven treatment recommendations.

However, our findings also reveal that a blended therapy solution needs to balance the structure it provides with an openness of its features so that therapists can use it flexibly, depending on their professional identities. As their professional identities evolve, therapists may require specific content to be included in the application (e.g., being able to personalize content) and decide upon which features to use and not use (e.g., monitoring patients' status). To ensure long-term use and patient benefits, these therapists require features that help them allocate elements of their roles to *elona* more efficiently. Overall, our findings reveal that developers of blended therapy solutions need to evaluate not only how and if therapists use such an information system, but also how therapists differ in their use of the information system. Accounting for each therapist's needs based on their (evolving) understanding of their professional identity is essential to realize long-term patient benefits of blended therapy and improve patients' mental health.

Limitations and Further Research

Our study is subject to three limitations. First, our focus on a select group of 30 cognitive behavioral therapists in Germany using one specific blended therapy solution, *elona*, and the small sample of patients they treated using *elona* limits the findings' generalizability. Extending this sample to include more therapists using *elona* and other blended therapy solutions sharing similar features would provide a more nuanced overview of the blended therapy's influence on the therapists' professional identities. Furthermore, it is important to note that our sample consisted of early adopters who were willing to test this solution in their therapeutic work. For these therapists, the formation of an IT identity is potentially important. Thus, they may want to integrate new information systems in their work. However, this interest does not apply to all psychotherapists, most of whom are hesitant to work with new information systems. Therefore, while understanding why this highly motivated group stopped using information systems has a strong practical relevance, the findings are not generalizable to all psychotherapists. Second, the two-year span in which we conducted our study is not long enough to observe in detail the stages in which therapists undergo identity work, and the long-term consequences of *elona* use on their professional identities. Future research should cover a longer period, such as five years, and long-term use (Carter et al., 2020). Similarly, future research should complement interviews with other methods such as diary studies, surveys, and observations. This would provide a more comprehensive picture of professional identity formations amongst novices. Third, our study focuses solely on the therapists' perspective. In a context such as CBT, the role of patients is crucial in forming the therapists' professional identities. Complementing the therapists' views their patients' views and how they perceive their therapists' roles and identities using *elona* may reveal similarities and/or discrepancies, providing valuable input on the therapists' professional identity formations.

Appendix

INT	No. of interviews	Gender	Age	Years of training	Duration of *elona* use (in months)	No. of patients treated with *elona*
			During the *first* interview			
1	2	Female	28	2	2	3
2	2	Female	28	2	4	2
3	2	Female	29	1.5	2	2
4	3	Female	28	2	3	1
5	1	Male	33	2.5	3	2
6	2	Female	37	2	5	3
7	2	Female	29	3	4	4
8	2	Female	27	2.5	7	7 + 20 students
9	1	Female	36	3.5	4	1
10	2	Female	28	3.5	11	8
11	2	Male	29	4 + 1.5	6	6
12	2	Female	28	3 + 1	4	6
13	2	Female	31	3.5 + 2 months	2	3
14	2	Male	35	4.5 + 3	2	1
15	1	Female	26	4	≈24	15
16	1	Female	≈26	2	6	5
17*	1	Male	≈50	≈20	*Interview only for triangulation; no patients*	

Table 1. Overview of interviewed therapists.

Theoretical code	2nd order categories	Exemplary descriptive codes	Exemplary quotes
Use patterns: How therapists use *elona* in their therapeutic work	Use and no use of specific features and contents	Using the dashboard	"When I activate [content] for a new patient, I sometimes check what the status of the other [patients] is [through the dashboard] and see has [my assigned content] been done or not [by the patient]?" (INT6)
		Assigning homework exercises	"And then [the patients] log into the app and do [my assignment] as homework." (INT7)
		Working with psychoeducational material	"So one patient [I am working with] has a generalized anxiety disorder, and I'm just at the beginning of therapy with her […] and [currently, we] work out what anxiety actually is […] So psychopathological content. And there *elona*['s content] is super helpful." (INT3)
		Not using specific features	Interviewer: "Do you check whether patients complete their assignments?" INT11: "No, not really."
		… *	…

	Embedding of the application into the therapeutic work	Discussing assignments during the therapeutic session	"[Summary of interview before: I can see on the dashboard whether patients have performed their homework]. So then, I can either discuss the relevant content in the session or move it to the next session." (INT6)
		Sending additional reminders through other channels	"I often looked [into *elona*] again a few days later and sometimes sent a reminder afterwards, where I thought it was somehow necessary." (INT8)
		…	…
	Use changes (in the second interview)	Expanding use areas	"But we've [the patients and I] actually used this throughout [the therapy] and I'm now starting to actually use it with patients to prevent relapses." (INT6, 2nd interview)
		Stopping using *elona*	"[Instead of *elona*], many [of my patients] have a book, a therapy book, where things are written down." (INT10, 2nd interview)
		…	…
Identification of therapists with *elona* (Cater and Grover, 2015)	Maturity of the IT identity	IT identity is still nascent and implicit for therapist	Interviewer: "You have said from the beginning, I am someone, I am open to new media, I would like to include this in my therapy. Is *elona* then something where you say, 'Okay, that's like an additional tool for me,' or does it also make something like your self-image as a therapist for you: 'I'm someone who moves with the times, for example'?" INT13: "It's a difficult question. It's something very implicit […] It has a bit to do with [my] self-image."
		Therapists integrate their IT identity into their therapeutic practice	Interviewer: "You said [off record] you're on the ravages of time if you use *elona*." INT12: "Exactly. So that I can show again as a therapist, 'Okay, I care about your well-being and your progress in therapy.' That's why I take everything we can get." (2nd interview)
		…	…
	Developing a symbolic meaning of *elona*	*Elona* as a source of inspiration	"[I recently had the question], 'How could I deal with depression and social anxiety in parallel […] using *elona*'s exercises?' And that's was actually really cool, because I looked into the [content] and thought, 'Oh, what could I do in the next session?'" (INT3)
		Elona as source for structure and confidence	"I don't know what it will be like later, when [my] therapeutic work has already become relatively established. But at the moment, *elona* gives me a sense of security because I know I have a structure that is based on [scientific] manuals. And if I follow it, at least I can't do much wrong." (INT9)
		Offloading therapeutic work	"What I enjoy about working with *elona* is the possibility to communicate less about psychoeducation during the sessions, but to cross-reference." (INT14)

		…	…
Process of forming a professional identity: comparing the ideal self (expectations of how one should behave as psycho-therapists, Ahuja et al., 2019) with the enactment of the professional identity (what is currently performed)	Construct-ing an ideal self	Referring to role models	"I am a therapist [in the sense of] Rosenberg [a US-American social psychologist] building on self-responsibility." (INT14)
		Defining the own role through the relationship with patients	"So, in my understanding, [I have] a supporting role, simply accompanying and supporting [patients]. It's also important to me that we [I and the patient] are on the same level." (INT8)
		…	…
	Experience tensions in identity enactment	Experiencing lack of confidence in the enactment of the professional role	"I think that's really something that's very typical for beginners, that you question yourself very critically and always ask yourself, 'Am I effective enough right now? Is [the therapy] progressing fast enough?' Then you think, 'Oh, I need to do more interventions.' […] Yes, for me [looking at these scientific manuals] triggers a pressure [of], 'I still have to do all this, I haven't done it yet.'" (INT1)
		Experiencing tensions between the structure underlying *elona* and the professional enactment	"And then, right at the beginning, I [used *elona*] in a somewhat structured way, i.e. I assigned the exercises [as proposed by elona] on a very regular basis. Then I realized that I think we, as therapists, who really want to make progress, [experience patients] did not change at all in the last few weeks, and we haven't made any progress at all." (INT2)
		…	…
**Note: The list of codes presented here is not exhaustive. This table presents solely a selection of exemplary codes.*			

Table 2. Excerpt of the coding table.

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