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Self-Directed and Self-Regulated Learning in Professional Development (SDRL-PD): an Integrated Paradigm

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ABSTRACT

In the context of a changing economic landscape, perpetual learning is essential for career advancement. This study introduces an integrated framework termed Self-Directed & Regulated Learning in Professional Development (SDRL-PD), which synthesises the principles of Self-Directed Learning (SDL) with those of Self-Regulated Learning (SRL). While both constructs address ownership and agency in learning, this framework calls for the complementation of SDL's emphasis on learners' exercised control over learning trajectory with SRL's focus on the management of specific tasks to improve learning outcomes. This paper provides a review of the existing literature relating to SDRL-PD, which includes an examination of the processes and the identification of factors that influence SDL and SRL. It proposes a need for a conceptualisation that ties SDL's macro-level focus on learning trajectory with SRL's micro-level focus on learning processes. Three directions for future research were highlighted: a deeper examination of existing SDL and SRL models, the integration of learning constructs relating to PD, and the development of validated measurement tools. Such advancements will foster a greater understanding of SDRL-PD, ultimately promoting more effective professional development practices.

KEYWORDS

Professional development, self-directed learning, self-regulated learning, adult learning, self-directed & regulated learning in professional development

Introduction

Amidst the rapid technological advancements and a fast-evolving global economy, lifelong learning and continuous self-development have become indispensable. Formal education alone is inadequate to prepare people to navigate the unpredictable and volatile changes inherent in today's world (Medel-Añonuevo et al., 2001; Shet, 2024). To stay relevant and maintain employability, working adults are experiencing increased responsibilities to self-direct and regulate their professional development (PD) to remain relevant in the workforce. As a result, proficiency in Self-Directed Learning (SDL) and Self-Regulated Learning (SRL) has become increasingly vital as individuals are expected to independently initiate, manage, and adapt their PD processes.

This call for enhanced support for SDRL-PD stems from my personal experiences navigating diverse professional roles and career transitions, coupled with observations and feedback from peers embarking on similar endeavours. These experiences revealed persistent practical challenges inherent to SDRL for PD, underscoring the need for dedicated support in this area. My professional knowledge and experience in education proved beneficial in the self-management of my PD journey. This experience informs the study's subsequent examination of SDL and SRL learning theories, aiming to establish a robust theoretical foundation for developing effective interventions for professionals.

While SDL and SRL are often used interchangeably in academic discourse, reflecting a perceived overlap between the two constructs (Loyens et al., 2008), it reveals a lack of conceptual clarity which is

metaphorically described as a “conceptual tangle” (Endedijk & Cuyvers, 2022). Despite their conceptual proximity, there is a reported lack of communication between these two fields (Cosnefroy & Carré, 2014), suggesting untapped potential for synergistic insights to enhance learning strategies, intervention efficacy, and understanding of the complexities of autonomous learning. Thus, this paper endeavours to advocate for an integrative paradigm through the synthesis of constructs of SDL and SRL, thereby underscoring the complementary strengths of each literature in advancing the conceptualisation of *Self-Directed & Regulated Learning in Professional Development* (hereafter referred to as SDRL-PD).

A historical examination of SDL and SRL origins illuminates their distinct academic lineages and focal points within the learning paradigm. Originating from the field of adult education, SDL emphasises the learner’s autonomy and responsibility in shaping their overall educational direction (Ellinger, 2004; Raemdonck et al., 2017). In contrast, SRL, rooted in cognitive psychology and informed by social cognitive theory (Zimmerman, 1989), examines how learners control and regulate specific tasks within an educational context (Loyens et al., 2008). Scholars (e.g., Jossberger et al., 2010; Endedijk & Cuyvers, 2022) identify the macro versus micro view adopted by the two constructs, highlighting the distinction in positionality between SDL’s broad strategic approach to self-management of learning endeavour and SRL’s detailed focus on task-specific management skills. Despite stemming from different origins and levels of granularity, the synthesis of an integrative paradigm that merges SDL’s macro-level orientation and SRL’s micro-level insights could enhance the overall effectiveness of learning in the face of evolving educational and working landscapes (Jossberger et al., 2010).

Establishing a unified framework is critical to the growing field of SDRL-PD as it directs attention to both the independent initiation of PD and strategic regulation of the professional learning process which are critical to achieving success in PD. For instance, in PD within online learning environments, adult learners’ self-directed initiatives to upskill are to be complemented by self-regulatory strategies for them to persist and ultimately achieve the set goals of their PD journey. Through a review of relevant literature, this paper argues for the adoption of an integrated paradigm towards SDRL in PD by first establishing the goals of SDRL-PD research, followed by the consolidation of the key characteristics from SDL and SRL that contribute to the conceptualisation of SDRL, and finally providing some suggestions on areas for future works and their significance to continue the exploration into SDRL-PD.

The Goals of SDRL-PD Research

Professional development (PD) is distinct from formal education by its focus on the continuous growth and adaptability required in the 21st century workforce (Dachner et al., 2021; Ellström, 2001). Earlier conceptions of PD often revolve around top-down PD programmes where professionals are expected to engage in PD based on directives or guidelines imposed by upper management. In these programmes, while professionals are granted some autonomy to select and engage in PD activities, it is situated within a context where the impetus for PD stems from some regulatory requirements for continuous PD (e.g., Cervero, 2000; Kitto et al., 2018), not necessarily self-initiated or self-motivated. In the past decade, professional trajectories have evolved and industries necessitate upskilling and reskilling in the 21st century. Thus, PD in this era necessitates a blend of self-directed and self-regulated learning to navigate the complex landscape of adult education. Unlike the more structured environment of formal education, PD is often self-initiated, contextualised within real-world practice, and demands proactive, flexible approaches to learning both at and beyond the workplace (Sitzmann & Ely, 2011). This autonomously driven and contextually situated nature of PD positions SDL and SRL as key constructs for professional growth and innovation (Koay, 2023).

The overarching aim of SDRL-PD research can be summarised into two main pursuits: (a) to deepen our understanding of how adults self-direct and regulate their learning in professional contexts, and (b) to leverage this insight to facilitate the practice of SDRL-PD. By advancing our knowledge, researchers contribute to the strategic development of learning experiences and environments that actively promote and sustain self-direction and self-regulation. Existing SDL and SRL research endeavours can be broadly grouped

into the following two categories:

- **Understanding the Process:** Research centred on the process aspect seeks to unravel the intricate steps and strategies that learners undertake when engaging in SDL or SRL. By disentangling this process, we can identify key phases (e.g., goal setting, strategic planning, self-monitoring, and reflection) that contribute to successful learning outcomes (e.g., Knowles, 1975; Zimmerman, 2000). A deeper comprehension of these mechanisms allows for targeted support—such as developing specific resources or training modules—tailored to distinct stages of the learning process (Panadero, 2017). This granular analysis permits a more precise examination of the phenomenon, enabling the creation of tools that assist learners at critical junctures of their learning journey.
- **Identifying Antecedents and Factors:** Research into the antecedents and factors that influence SDL or SRL focuses on the broader conditions that foster or hinder self-directed and self-regulated learning behaviours. Studies may look at individual characteristics such as motivation and self-efficacy, as well as external variables including workplace culture, access to resources, and socio-economic elements (e.g., Garrison, 1997; Pintrich, 2000). Understanding these factors is pivotal in designing effective learning environments and interventions that support SDL or SRL. It permits educators, policymakers and organisations to identify opportunities and mitigate barriers towards SDL and SRL.

With the awareness of these two areas of foci, this paper examines key models of SDL and SRL to determine both the factors and processes that collectively conceptualise SDRL. As the objective of this paper is not to perform an exhaustive analysis but rather to offer a preliminary survey highlighting the potential value of a more in-depth investigation, the forthcoming section provides a cursory review of the SDL and SRL literature. Through the review of relevant literature, I will identify key characteristics from both SDL and SRL research that seem most influential in forming a conceptual groundwork for SDRL-PD. This provisional foray into established scholarship will shed light on the intersections between these fields, underscoring the merits of a more extensive study.

Exploring a Conceptualisation of SDRL-PD

As the existing conceptualisations of SDRL-PD remain scarce, this section extends to reference a broader set of literature on SDL and SRL to provide a deeper examination of the process as well as the factors and antecedents of SDL and SRL. After exploring the relevant concepts in SDL and SRL respectively, each sub-section will include a discussion based on the context of SDRL-PD. A summary table is included to provide a visual consolidation of the key discussion points (see Table 1). Finally, this section will conclude with a consolidation of key points essential for the conceptualisation of SDRL-PD.

Understanding the Process of SDRL-PD

The literature on SDL and SRL illuminates processual differences that are notably shaped by their respective learning contexts. SDL is typically associated with the continuum of adult learning, which often unfolds in unstructured environments that encompass diverse learning modalities. Conversely, SRL is studied predominantly within the structured confines of educational institutions, facilitating a more granular analysis of learning processes. A brief recount of the key processes will be provided and their implication on the conceptualisation of SDRL-PD processes will be discussed.

SDL Processes: The term “Self-Directed Learning” was most notably introduced by Malcolm Knowles in his book: *Self-directed Learning: A Guide for Learners and Teachers*, which describes SDL as “a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes” (Knowles, 1975, p. 18). This perspective encapsulates SDL’s characteristic phases: self-assessment of learning needs, goal

setting, resource identification, strategy selection and application, and outcomes evaluation. Interestingly, while numerous definitions of SDL identify the involvement of cognitive, metacognitive, reflective and collaborative “processes” (e.g., Brockett & Hiemstra, 2018; Garrison, 1997), few studies delve further into uncovering the processes of how SDL is conducted, namely the steps and strategies adopted by the learners while engaging in SDL. Beyond pedagogical interventions (e.g., Problem-based learning by Leary et al., 2019; review of pedagogical strategies by Robinson & Persky, 2020), reviews on SDL (e.g., Loeng, 2020; Owen, 2002) seldom surface SDL processes and strategies adopted by learners as key discussion points, indicating the general lack of attention in this direction.

SRL Processes: In contrast, reviews on SRL (e.g., Puustinen & Pulkkinen, 2001; Panadero, 2017) often describe varying interpretations of the sequential phases and intricate subprocesses of SRL. Zimmerman’s (2000) widely recognised cyclical model delineates three phases within SRL: (a) forethought, which encompasses goal setting and action planning; (b) performance, where strategies are applied and performance is closely monitored; and (c) self-reflection, where learners critically evaluate their performance and the effectiveness of their strategies. Similarly, Pintrich’s (2000) model of SRL also identified distinct phases to SRL processes: (a) forethought, planning, and activation; (b) monitoring; (c) control; and (d) reaction and reflection. While less prescriptive in sequential progression, the SRL models by Boekaerts (1996, 2011), as well as Winnie and Hadwin (1998) also strive to dissect the complexities of the SRL process, mapping how the phases may interact and relate to each other. Collectively, these models elucidate preparatory, performance, and appraisal phases (Puustinen & Pulkkinen, 2001), underscoring the concerted effort within SRL discourse to dissect and scrutinise the multifaceted subprocesses underpinning self-regulated learning.

Discussion on SDRL-PD Processes: The theoretical advancements in understanding the processes of SRL offer detailed insights essential for conceptualising SDRL-PD processes. Compared to SDL, which tends to offer a broader framework, SRL provides granular guidance on the subprocesses of learning, making it invaluable for forming the conceptual backbone of SDRL-PD’s processes. SDL’s macro focus on learners’ self-direction reflects the independent nature of adult learning, which might account for the limited procedural detail in SDL models. Learners in SDL environments are often recognised as the curators of their educational paths, characterised by a flexible adaptation of learning to fit their life contexts, as noted by Guglielmino and Guglielmino (1991, as cited in Owen, 2002), who describe SDL as inherently dynamic and not uniformly structured. With such a paradigm, attention is directed towards empowering learners in their self-directed pursuits rather than examining the procedural intricacies of SDL.

In contrast, SRL research predominantly occurs in formal learning environments, which naturally lends itself to a deeper and more explicit examination of learning processes. This specific focus of SRL research can thus contribute to the foundational development of the conceptualisation of SDRL-PD processes. Nevertheless, since learning tasks are often assigned and predetermined in SRL studies, SRL literature often does not address the initiation phase of learning which is critical to PD of the 21st century. SDL contributions, such as *Entering Motivation* from Garrison’s model (1997), are essential in exploring the initiation processes in PD. Therefore, while SRL provides comprehensive details on the procedural aspects of learning, integration with SDL is still necessary to furnish a complete view of SDRL-PD. Through the combination of the procedural clarity of SRL with the initial engagement strategies from SDL, such an integrated approach underlines the strengths of each construct and supports a more rounded conceptualisation of SDRL-PD, enabling a robust framework that addresses both the initiation and the execution of professional learning.

Understanding the Factors and Antecedents of SDRL-PD

An in-depth examination of the factors and antecedents of SDRL-PD is vital for tailoring conditions to promote effective learning. Just as the analysis of learning processes is key, understanding what precedes and influences these processes is equally imperative. This understanding informs the identification of critical factors within internal conditions and external environments to be augmented for the fostering of SDRL-PD initiation and sustenance, thereby optimising the professional development experience for adult learners.

There are numerous ways to categorise the factors that contribute to SDL and SRL, and the decision is influenced by factors such as the scholar's theoretical paradigm, discipline, and interpretative perspective. In an attempt to provide an objective account of the factors affecting SDL in this paper, I have elected to distinguish the factors based on the two common denominations identified by Saks and Leijen (2014)—internal (intrinsic) and external (extrinsic) factors—while fully acknowledging that this dichotomy may not capture certain nuanced distinctions and intricate interplay between some of these factors. For instance, while motivation is inherently a personal experience, it is inextricably shaped by external influences. Bearing these limitations in mind, the following paragraphs present a consolidation of the factors and antecedence of SDL and SRL in current literature.

Factors and Antecedents of SDL: The intrinsic factors of SDL encompass personal attributes essential for individuals to effectively manage and navigate their learning experiences. Garrison (1997) delves into cognitive and metacognitive abilities, stressing the importance of skills such as resource management, monitoring of learning strategies, and reflective practices that allow learners to adapt their thinking and strategies to new situations. Building upon this, Knowles (1975) and Brockett and Hiemstra (2018) explore the influence of the learner's skills and competencies related to the subject matter on their capacity for SDL, with Brockett and Hiemstra (2018) additionally emphasising the critical role of personal responsibility within SDL's intrinsic framework. Besides reviewing theoretical conceptualisations, instruments can also provide a consolidation of factors of interest. For example, Guglielmino's (1977) Self-Directed Learning Readiness Scale identified eight distinctive factors relating to SDL, namely: openness to learning, self-concept as an effective learner, initiative, and a forward-looking approach, all intertwined with elements of creativity and problem-solving.

On the extrinsic side, SDL is influenced by factors external to the learner like the degree of control and choice within the learning environment, a theme explored by scholars such as Brockett and Hiemstra (2018), Candy (1991), Grow (1991), and Pratt (1993). Socio-demographic factors, examined by researchers including Adenuga (1989), and Brookfield (2014), also contribute to SDL by providing the contextual backdrop that either facilitates or hinders the learning process.

Factors and Antecedents of SRL: Stemming from social cognitive theory (Bandura, 1986), SRL research focuses largely on cognitive and motivational factors (Winne, 1995; Zimmerman, 1986) before Boekaerts (1996) provided a closer examination into the affective domain (see Panadero, 2017). Amongst the existing SRL models, Pintrich's (2000) model provides arguably the most organised list of factors, grouped into four areas of regulation: (a) cognition, (b) motivation/affect, (c) behaviour, and (d) context. Albeit the overlaps with the factors identified by SDL, SRL literature places greater emphasis on the influence of these factors on the processes of SRL rather than the factors themselves (Cosnefroy & Carré, 2014).

Discussion on Factors and Antecedents of SDRL-PD: Akin to the corroboration of independent studies, the parallel yet independent development of SDL and SRL presents a unique opportunity for the synthesis of SDRL conceptualisation in terms of factors and antecedents. By comparing and contrasting the list of factors, this integration not only confirms shared attributes, reinforcing our confidence in the overlapping aspects as characteristics core to the construct, but also underscores distinct elements which can guide us towards a more comprehensive and integrative model that accounts for all these factors. Beyond the cursory outline presented in this paper, more work needs to be done to examine and review these similarities and differences in detail, and adapt them for the context of PD.

In all, this review of the processes, factors, and antecedents associated with SDL and SRL reveals a compelling rationale for consolidating these constructs into a unified framework for SDRL-PD. This integrated paradigm positions PD to encompass not only the regulation of learning tasks within formal learning settings (e.g., higher education context or vocational training; see Jossberger et al., 2010) or prescribed PD programs (e.g., Jeong et al., 2018) but also, crucially, the self-initiation and self-direction of learning trajectories which characterises 21st century PD. At the same time, while existing research, such as the work of Mushayikwa and Lubben (2009), has identified macro-level factors influencing PD, an SDRL-PD paradigm facilitates a more granular understanding of the underlying processes, enabling targeted guidance and support at the micro-

level. Hence, an example of the SDRL-PD framework would involve examining learners' iterative process of PD from the initiation of PD endeavour including ownership of responsibility (Brockett & Hiemstra, 2018) and sustaining motivation (Garrison, 1997) at the macro level, to the regulatory processes involved at the preparatory, performance, and appraisal phases (Puustinen & Pulkkinen, 2001) at the micro level. By synthesising the strengths of both SDL and SRL, this integrated approach provides a holistic macro-to-micro lens through which to examine and enhance 21st century PD.

Table 1
 Key differences between SDL and SRL research

	SDL	SRL
General observation:	<ul style="list-style-type: none"> • Macro focus at the management of learning trajectory • Predominant focus on factors and antecedents 	<ul style="list-style-type: none"> • Micro focus at the management of learning task • Predominant focus on processes
Process involved:	<ul style="list-style-type: none"> • Broader frameworks with limited procedural details • Includes considerations for the self-initiation of learning 	<ul style="list-style-type: none"> • Frameworks with clear sequential processes • Less focus on self-initiation of learning
Factors and Antecedents	<ul style="list-style-type: none"> • Focus on both intrinsic and extrinsic factors • Less explicit in classifying factors into the cognitive, metacognitive, motivational and affective domains 	<ul style="list-style-type: none"> • Greater focus on intrinsic factors • More detailed classification of factors into cognitive, metacognitive, motivational and affective domains

Conclusion

The fields of SDL and SRL are well-developed, with each boasting a wealth of research and substantial theoretical development. This paper does not claim to fully capture the extensive advancements within these domains; rather, it has pursued a modest objective: to present the potential benefits of an integrative paradigm to SDL and SRL and its relevance to PD. This paper has identified how the literature on SDL offers overarching theoretical contributions that enrich our broader understanding of learning, particularly in initiating learning in contexts where the tasks are not pre-determined. Conversely, the literature on SRL provides intricate details, particularly concerning the processes that learners employ when actively engaging in the self-regulation of their learning. Hence, the integration of SDL and SRL is set to enhance our overall understanding of the phenomenon, synergising broad conceptual insights with detailed process-oriented specifics, which is critical to supporting the self-direction and regulation required of PD in the 21st century.

The exploration of such an integrated perspective opens a pathway that is prime for scholarly inquiry and practical application. Future research should consider the following areas to enhance our understanding and application of SDRL-PD:

- **Deeper analysis of the SDL and SRL models and instruments:** A thorough re-evaluation of the models and instruments in SDL and SRL is essential. Given the extensive development and inherent disagreements within each field (see Owen, 2002; Panadero, 2017)—examples include the influence of choice, learner maturity, contextual impacts, and the sequential nature of learning—a thoughtful consolidation of these elements can significantly steer future research endeavours.
- **Integration of Diverse PD Context:** The incorporation of additional relevant PD context, especially those emanating from online learning scenarios (e.g., Massive Open Online Courses (MOOCs), Virtual Communities of Practice, and on-demand virtual learning resources), workplace and informal learning

environments, will also be critical to the contextualisation of SDRL-PD.

- **Development of Measurement Instruments:** The creation of validated instruments is pivotal to acquiring empirical data for the advancement of research and understanding. These tools may involve technological innovations (e.g., trace data from online learning) or established self-reporting methodologies which can serve to empower researchers with data collection capabilities and offer learners reflective insights into their PD journey.

While emerging research demonstrates growing attention in these areas (e.g., Endedijk & Cuyvers, 2022; Jossberger et al, 2010, this paper advocates for further efforts in view of the significant opportunity presented by integrating the rich bodies of research on SDL and SRL, particularly given the growing importance of SDRL in contemporary PD context. Ultimately, by advancing research in these areas, we can achieve a more holistic understanding of SDRL and advance the theoretical and practical development that helps support learner-driven PD practices in this increasingly complex and fast-changing world.

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