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REVIEW PAPER

Future directions for self-determination theory: Introduction to the special issue

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Abstract
Self-determination theory (SDT) has become a leading theory of motivation and wellness, and research in this area continues to grow each year. In this special issue we highlight a few recent and novel directions in SDT research, including its application to new areas such as compliance with laws and anti-racism, interdisciplinary interfaces with fields including philosophy and data science, and new methodological innovations applying computational modelling, databasing, economics, and neuroscience. We particularly highlight how SDT can be applied to socially complex issues outside the traditional scope of psychological research. We hope this special issue highlights both the narrow and broad implications and applications of the theory and the new directions it might take.

Keywords Self-determination theory · Special issue · Review · Societal challenges

Introduction

Self-determination theory (SDT) has become one of the leading theories of motivation and wellness and its application in research continues to increase every year. A database search for "self-determination theory" in Web of Science (up to and including 2024) returned a total of 16656 documents, and this includes only the articles that explicitly name the theory in the title or abstract. According to these criteria, in the year 2000 there were 33 new articles published, in 2010 333 new articles, and in 2020 1,795 new articles, demonstrating an impressive rate of growth for SDT research (see Fig. 1). This trend is of course mirrored when searching for specific SDT terms. For example, a search for "intrinsic motivation" yields 19091 documents in Web of Science with 1,344 of those coming in 2023 alone. A search for the term "autonomy support" reveals a similar pattern and confirms the observations from a recent meta-analysis by (Slemp et al., 2024) which also documented the significant increase in articles year on year. Along with this growing literature has come more systematic reviews and meta-analyses, with Ryan and colleagues (2023) for example reviewing over 60 meta-analyses relevant to SDT. Each of these meta-analyses individually examined hundreds of studies, contributing to an even stronger empirical and theoretical foundation and expanding our understanding of SDT and its applications. Clearly, the theory is thriving and being used more widely than ever.

The research on SDT has been, and likely will continue to be strengthened by efforts to test its propositions, refine and redefine its scope, and expand its applications. SDT also has a rich history of intervention studies that have helped solidify its understanding of causal mechanisms within social environments and demonstrated its practical relevance in a variety of domains.

In this special issue, we aim to build on this trajectory of growth by highlighting some of the newer directions in SDT, including novel applications, interdisciplinary interfaces, and new methodological innovations. Because of the special issue's focus on new directions, we had to reject many well-conducted studies through the review process,

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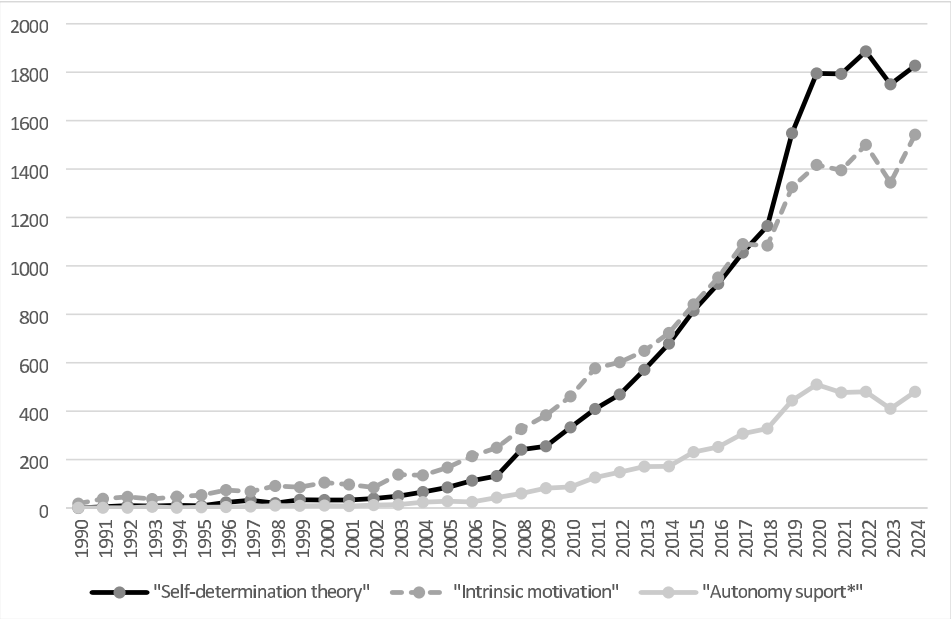


Fig. 1 Number of new articles published per year

not because they were not strong studies, but simply because they did not fit this specific aim. We reviewed and present submissions to this special issue according to a series of themes, specifically: (1) developments within SDT including studies that refine, extend, or elaborate aspects of the theory, (2) new topics of application including research that applies SDT in underexplored domains, and (3) macro-level applications of SDT taking a broader societal perspective, including connections with neighboring fields of social science. In short, our primary goal was to showcase research that expands SDT's scope, rather than review its already well-documented aspects. We also note that, given how intimately methodologies and research questions are linked, new methods will be an important facilitator of further theoretical and practical progress. This special issue includes a range of innovative methods including neuropsychological measurements, novel statistical models, and broader meta-analytical methods. In total, we included six studies examining developments within SDT, four examining new topics of application, and two that discuss SDT in complex social systems, and one integrating motivation theories. In the following sections we introduce and define each of these categories and highlight existing research relevant to each topic, before introducing the articles included in this special issue.

Developments within SDT

Despite its long history and robustness, SDT is still evolving and developing, with several notable advancements in recent years. For example, *relationships motivation theory* (RMT) has been added as SDT's sixth and newest mini-theory (Deci & Ryan, 2014), while *goal contents theory* (GCT), established in the 1990's (e.g., Kasser & Ryan, 1996, 2001), has recently reemerged with renewed vigor (Bradshaw et al., 2023a). There have also been refinements in *basic psychological need theory* (BPNT) including those reviewed in a previous special issue of this journal (Vansteenkiste et al., 2020). These refinements have included new measures to distinguish not only need satisfaction from need frustration, but also from need non-fulfillment (Bhavsar et al., 2019; Cheon et al., 2019). Studies focused on new candidates for basic psychological needs have also occurred. For example, González-Cutre et al. (2020) and Bagheri and Milyavskaya (2020) proposed that *novelty-variety*—doing or experiencing something new or outside one's usual routine—could be a candidate need, with initial evidence suggesting its promotion can have psychological benefits beyond other needs. However, the extent to which this enhancement effect of novelty is context or domain specific rather than general remains to be seen Ryan (2025). Martela and Ryan (2016) have similarly examined whether *benevolence*—the sense of doing of good for others—is a basic psychological need. So far, they have found that benevolence better fits the criteria for what they termed an *enhancement need* (as opposed to a *deficit need*), in that experiencing benevolence boosts well-being, but when opportunities to be benevolent are thwarted, there may not be psychological costs. Assor's (2017) work on the *authentic inner compass*, which aims to quantify what it is to feel integrated and fully autonomous, represents another meaningful recent progression of SDT. Such milestones—and there are many more—represent important areas of growth within the theory.

New developments in this issue

In this special issue we were interested in research that continues this tradition of meaningfully developing the theory "brick by brick" (Ryan & Deci, 2019, p. 111). The article by Chanal and colleagues (this issue) contributes to this aim with a study that examines whether different types of motivation are specific to certain classes or consistent across school topics. The authors refer to this as the *specificity hypothesis* (Chanal & Guay, 2015) which states that autonomous regulations will exhibit more variation across academic subjects compared to controlled regulations, highlighting the increased specificity of autonomous regulations. Results from two student samples supported the specificity hypothesis by demonstrating that intrinsic motivation is largely specific to individual courses, resulting in greater variation across courses, as opposed to external regulation which is more consistent across subject matters. This specificity hypothesis opens up interesting questions regarding the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997) such as how transferable motivation is between contexts, even within the same domain.

Jauvin and colleagues (this issue) examined how sports coaches' autonomy-supportive and controlling behaviors shape the psychobiological outcomes of athletes in their charge. Through the integration of real-time biomarkers of stress (i.e., heart rate variability), their work goes beyond how need-supportive and need-thwarting behaviors link to self-reported satisfaction and frustration, to how those experiences are manifest in the body (see also Bartholomew et al., 2011). Some of Jauvin et al.'s findings are consistent with theoretical expectations, but others are more nuanced, suggesting that controlling coaching may lead to more varied physiological responses than previously assumed. Insights from this work not only expand our understanding of coach and athlete interactions but also raise broader questions about how social environments can shape biological adaptation over time.

Fang and colleagues (this issue) also focused on measuring need-based experiences beyond the level of self-report. By using event-related potentials (ERPs)—real-time indicators of neural activity—Fang et al. tracked the spillover effects of people's experiences of competence frustration. Consistent with expectations, the authors found that competence frustration was linked to reduced engagement, and that developmental feedback can influence that process. Results using ERPs showed a more complex and dynamic set of associations than is typically captured by traditional methods. Rather than a simple spillover effect, Fang et al.'s results suggest that neural responses to feedback might diverge from self-reported experiences, raising new questions about the mechanisms through which competence frustration may—or may not—translate into lasting changes in motivation.

Reeve and Lee (this issue) also explored the neural dynamics of motivation, in their case, using functional magnetic resonance imaging (fMRI). By measuring real-time brain activation, they showed distinct neural pathways through which experiences of autonomy facilitate interest and learning. By mapping these pathways, Reeve and Lee provide new insight into the temporal and functional architecture of autonomy satisfaction, offering a neurobiological foundation for SDT's longstanding claims about autonomy's energizing role in learning and interest. Like Jauvin (this issue) and Fang (this issue), Reeve and Lee help deepen our understanding of the physiological underpinnings of need-based experiences through objective metrics such as real-time brain activity.

As noted by Lee (2023), neuroscientific approaches to SDT are also vital for connecting the psychological constructs in the theory with the physiological processes underpinning them. As noted by Di Domenico and Ryan (2017) physiological and neuroscientific approaches can bring a higher level of resolution to SDT investigations and provide access to processes that individuals may not report through survey answers. As such, the psychological variables we typically study could be enhanced by tying them to distinct neuropsychological activations especially in real-time processing of events. Conversely, SDT's clear theory offers testable hypotheses for neuroscientists.

One of the key challenges of bridging these fields is ensuring that SDT's constructs are accurately captured across different paradigms and methods. In SDT-based survey research constructs are typically assessed using well-validated, multi-item, self-report measures. However, in fields such as neuroscience, large scale economic surveys, and experience sampling contexts, applying lengthier measures is not always feasible. Instead, as both Fang et al. (this issue) and Reeve and Lee (this issue) show, single items are often essential for mapping brain activity onto subjective experience in real-time. Accordingly, the key to conducting SDT research in contexts where brevity matters will be to ensure that the measures employed are consistent with the broader theory and accurately capture the nature of motivation that SDT puts forward (see also Martela & Ryan, 2024).

Guckelsberger and colleagues (this issue) introduce a computational modelling approach, highlighting how this methodology can be leveraged to develop precise definitions of concepts. Computational modelling involves deriving a mathematical formula to describe a theory before testing the validity of the formula, typically through simulation, and further refining the formula (Vancouver & Weinhardt, 2012). Computational modelling has roots in cognitive psychology and is similar to some forms of modeling undertaken in data

sciences and economics. Perhaps most saliently, it requires first that a theory be formalized, which means depicting a theory using standard mathematical notation rather than words. This process itself is argued to be highly useful as it limits definitional ambiguity of constructs and the relations between them (Guckelsberger et al., this issue; Weinhardt & Vancouver, 2012). However, while the level of required precision is an important feature, the process also requires substantial thought to ensure the defined variables are consistent with the broader theory (Sheldon & Ryan, 2025). For instance, formalization may focus on facets of broader constructs, whose relations must be understood. Once formalized, simulation studies can be carried out to test and refine the model. Then, after an ideal model is established through simulation, real data can be used to test the model.

Formal models stand to advance SDT through several avenues. First, the precision required to formalize a theory will itself be a valuable process and will require clarification of propositions with SDT. Furthermore, modeling theories in such a manner will make these theories more easily integrated with other fields such as economics which often employ such mathematical modelling. Finally, formal modeling could make theoretical integration of neighboring motivation theories less ambiguous. Accordingly, it will be interesting to see what further computational modelling of SDT can achieve in future research. While the increased precision of specification and advancement of accompanying methodologies are important and will undoubtedly be topics of interest over the coming years, it is also important to ensure that the tenets of SDT are appropriately translated into these new methodological paradigms (Sheldon & Ryan, 2025).

Finally, Olafsen and Marescaux (this issue) apply a novel method to examine the necessity of SDT's basic psychological needs for employee wellbeing. Specifically, they apply *necessary condition analysis* (NCA) across three samples (two cross-sectional and one longitudinal) to examine the extent to which need satisfaction and need frustration of the needs for autonomy, competence, and relatedness are essential for employee's wellness and avoidance of distress. Their findings, though somewhat varied across work settings, generally suggested that both autonomy satisfaction and lack of autonomy frustration was necessary for promoting well-being and avoiding ill-being. In addition, low frustration of competence appeared as a necessary condition for employee wellness. In contrast, in these workplaces the need for relatedness did not consistently emerge as necessary for positive outcomes. These findings converge with another recent application of NCA by Ding and Kuvaas (2025), which identified all three need satisfactions as necessary for employee thriving. NCA, which focuses on the prediction of score distributions provide yet another new tool for validating SDT's assumption of the essentialness of its three basic psychological needs for workplace wellness, as well as other behavioral domains.

New topics of application

One of the most immediate ways to expand the scope of SDT is by applying its core constructs to novel topics of inquiry. To highlight a few examples from recent years, we have seen new research on the topic of solitude (Bradshaw et al., 2025; Nguyen et al., 2018; Weinstein et al., 2023), identifying that the experience of solitude is dependent on the motives of the individual. Research on the benefits of mindfulness has also burgeoned within SDT, focusing especially on how mindfulness facilitates intra- and interindividual benefits through enhancing autonomous motivation (Donald et al., 2020; Ryan et al., 2021). In the workplace, we have seen SDT discussed in relation to algorithmic management (Gagné et al., 2022), investigating how electronic monitoring and goal setting programs can serve as managers, particularly in the area of gig work. Relatedly, with the explosion of AI technologies in recent years we have also seen more research examining motivational attitudes towards AI (Bergdahl et al., 2023) and how to implement AI into various contexts in ways that support, rather than thwart, basic psychological needs (e.g., Li et al., 2024; Xia et al., 2022). Collective autonomy, or basic psychological needs of a group, has also been the focus of research in recent years with Kachanoff and colleagues (2019, 2020) examining the impact of group forces on need satisfaction. In the current issue we see a continuation of this expansion, especially represented by three articles applying SDT to new areas of application.

New topics of application in this issue

Prior research in SDT has often focused on how social environments support or thwart basic psychological needs, but we are of course, agents within those environments. That is, humans are not wholly shaped by the whims of their environment; they can seek and drive their own need satisfaction, in what has been termed *need crafting* (Laporte et al., 2021a, b). Van den Bogaard and colleagues (this issue) extend this emerging line of research by testing *LifeCraft*, an intervention designed to teach university students how to 'craft' and enhance basic psychological need satisfactions in their everyday lives. In a randomized controlled trial, Van den Bogaard et al. compared those in a need crafting condition against both active and passive control groups. Their results suggest that need crafting can be important for well-being and resilience over the longer-term, though

they also raise important questions about the circumstances that enhance or limit the effectiveness of such interventions. By offering a rigorous experimental test of a need-crafting intervention, Van den Bogaard et al. contribute to the expansion of SDT's understanding of self-directed motivation and applied psychological training.

Legault and colleagues (this issue) examine how SDT can be used to research the gap between anti-racist attitudes, which most people espouse, and anti-racist actions, which many people avoid. That is, while people disagree with racism, very few stand up to actively address or confront it. Legault and colleagues apply a distinction between *asserted autonomy* and *assisted autonomy* to identify predictors of both positive attitudes and antiracist actions. Whereas assisted autonomy was a stronger predictor of positive outgroup feelings, only asserted autonomy was linked to a willingness to act. In a second study this research team assessed antiracist intentions before and after presentation of an antiracist message. They found that only those high in asserted (but not assisted) autonomy showed an increase in antiracism post message. This work is important not only regarding anti-racism behaviors, but more generally starts to bridge the gap between attitudes and action that applies to domains from environmental sustainability to politics.

Riddell and colleagues (this issue) investigate whether experiencing different types of motivation can influence early sensory processing of events via an experimental task. This study tested whether the self-concordance (the relative autonomy) of goals (subconsciously) shapes participants' perceptual processes. This challenges the assumed "bottom-up" conceptualization in which external events are objective and unidirectionally cause our perceptions. Instead, this experiment sought to add to the body of work suggesting that our psychology, and in this case self-concordant goals, also play a "top-down" role in influencing how we process information, also known as motivated perception. Findings in the study indicated that participants with more self-concordant or autonomous goals reacted more quickly to events, but were less accurate, leading the authors to conclude that the relative autonomy and integration of goals may not impact the perceptual process, but rather influence immediate reactions.

Tovmasyan et al.'s studies (this issue) apply SDT in the context of people's compliance with the law, asking whether citizens comply with laws because they fear punishment or because the statutes resonate with their own values. Using a series of preregistered studies centered on health-data law, the authors pitted autonomous motives against controlled ones and explored how value clashes (privacy versus inclusion) shaped people's intentions to obey. By treating law-making as a potentially need-supportive or need-thwarting aspect of the societal context, their work adds a societal-level lens to the application of SDT and allows readers to discover whether autonomy really does trump authority when it comes to the important matter of legal compliance.

Complex social systems and SDT

The world continues to grapple with complex social issues systemic to our institutions and governments. These social issues range from coordination of public health initiatives and commercialization of attention, to education quality and climate change. These societal topics and the institutions that influence them are increasingly receiving attention within SDT, suggesting the theory has a role to play in addressing these "grand challenges". One framework to view these societal challenges is through the United Nations' (UN) Sustainable Development Goals (United Nations, 2024) which aim to guide collective efforts, including academic research, towards meaningful and pressing issues impacting societies around the globe. Recent SDT work has already engaged with several of the UN's goals. For example, the "It Grows" program—anchored in SDT and developed in Spain—uses need-supportive mixed-team physical activity rotations to boost females' participation and leadership in sport, demonstrating tangible progress towards the UN's goal #5 of Gender Equality (Lamoneda Prieto et al., 2023; Smith Palacio et al., 2024). Cheon et al. (2023) contributed to the UN's goal for Reduced Inequality with their clusterrandomised studies of autonomysupportive teaching workshops. Specifically, in Korean secondary schools, teachers who were trained in an SDT-based treatment group had classrooms with a more supportive peer climate, within which bullying and victimization decreased, and bystanders were more likely to defend victims. Direct application of SDT-based interventions, especially among school, exercise, and health contexts (e.g., Ntoumanis et al., 2021) are a distinct strength of this theory. This evidence demonstrates that SDT is not a purely theoretical endeavor but is also deeply practical and designed to be implemented in the real world. However, we can also look beyond these direct researcher-led interventions and consider how SDT can be situated into the institutions, policies, and governing bodies at a more pervasive societal level.

A prime example of this is SDT's influence in educational policy across several countries. For example, in Singapore (Wang et al., 2016, 2019) and Belgium (Aelterman et al., 2014) teacher training now incorporates an emphasis on autonomy, relatedness and competence supports. While we know a lot about student experience and how parents and teachers can influence students (Guay, 2022; Bureau et al., 2022), it must be considered that teachers themselves work within institutions that can either support or thwart the

ability of teachers to create need supportive environments, whether this be school principals and administration (Fernet, 2011) or more institutional forces like national "high stakes" standardized testing (Ryan & Weinstein, 2009). These types of institutional influence are something we can consider as the theory continues to gain empirical support and momentum. In this section we will discuss some of the domains in which SDT has been active in the past, and encourage further consideration of how SDT can positively impact the institutional structures around us.

Healthcare and public health

SDT has long been applied in healthcare (Ntoumanis & Moller, 2023; Ng et al., 2012; Williams et al., 2002). This work has often focused on facilitating healthy behaviors or treatment adherence though correlational research (Ng et al., 2012), or through intervention studies (Ntoumanis et al., 2021). It has also focused on medical education and the import of autonomy support within training settings (e.g., Neufeld, 2021). Additionally, we have seen SDT being applied to the social problems arising from COVID-19, particularly in examining how to best ensure social distancing (Legate et al., 2022; Morbée et al., 2021). Evidence from SDT research has supported the idea that public messaging that is delivered in caring, competence-supportive ways that support choice and personal agency bring about higher levels of adherence and persistence (Martela et al., 2021). While controlling messaging, inclusive pressure, and shaming may be simpler approaches, evidence indicates these strategies will only increase controlled motivation and thereby result in greater defiance (Legate et al., 2022). This research on public health messaging is an excellent example of how SDT principles can be used to deliver better health outcomes through institutional mechanisms, and may apply equally to other pressing societal issues such as healthy eating, exercise participation, and smoking cessation, among others. Furthering this field of research may involve connecting SDT more closely with areas such as public health in order to influence broader scale interventions or policy change (Moller et al., 2006).

Economics and fiscal policy

SDT has been connected to economics and related fields of consumer behavior throughout its history (Pugno, 2008). The undermining effect, for example, was adopted into economics under the name of the "crowding-out" effect (Frey & Jegen, 2001) and has been investigated broadly in that literature. Within psychology, Forest and colleagues (2023) highlighted the importance of discussing SDT in relation to wealth inequality and taxation while Howard (2024) and Zajack, (2021) have discussed economic and social policy from the SDT perspective. Others such as Kuvaas and colleagues (e.g., Kuvaas et al., 2017; Kuvaas et al., 2020; Weibel et al., 2010) have interfaced with economic thought while examining the impacts of incentives on motivation. More recently Gagné and Hewett (2025) discussed the alignment of SDT with Agency Theory—a seminal theory of motivation in economics and enduring influence in management research—highlighting that SDT's perspective is an essential, yet often overlooked, consideration in traditional economics.

Given that some economists and policy makers are moving beyond traditional measures of economic prosperity, for example by considering indicators other than simple gross domestic product, it seems there is room for more humanistic approaches to be heard. Specifically, we are seeing indicators such as the *Human Development Index* (Anand & Sen, 1994) and indicators of wellbeing (Rijpma et al., 2024; Martela & Ryan, 2023), being discussed and taken seriously by countries around the world. As SDT is increasingly adopted in organizational psychology (Kanfer et al., 2017), it may be timely to enter discussions of how well-being should be valued and prioritized alongside economic indicators at national levels (Martela & Ryan, 2023). This process may begin with SDT research addressing broader topics in which psychology and economics interact such as wealth inequality and taxation (Forest et al., 2023) or potential public policy (Howard, 2024), and it may prove useful to build stronger connections with neighboring fields of research such as economics and data science that currently hold influence at these national levels.

Philosophical positions

Not all influence is won through data analysis and policy. Strong philosophical arguments can result in substantial changes in the way institutions are perceived and implemented. SDT has stronger philosophical connections than most, for example, Ryan and colleagues (2013) have discussed Aristotelian *eudaimonia* as arguably the central goal of SDT. Additionally, Krettenauer and Curren (2000) led a special issue on SDT, morality, and education; Sheldon and Martela (2022) have discussed free will through the perspective of SDTDeHaan et al. (2016); Bradshaw et al. (2023b) have investigated connections between basic psychological needs and people's access to rights and freedoms as detailed by Nussbaum (2011) and Rawls (1971/2009). Finally, Bradshaw and Ryan (in press) recently described how SDT's conceptions of autonomy relate to both analytic and existential approaches to this theoretically central construct. Across such articles, SDT researchers identify connections between established philosophical positions

and the concepts and constructs of SDT. Considering the philosophical underpinnings of the theory, and how these align (or not) with other positions will be important when connecting SDT to social, economic, and political issues. "Shared assumptions are necessary for a coherent science" (Reeve, 2016), and the same is true when discussing the value of specific policies.

National level of analysis

In recent years we have seen an attempt to move SDT to a national level of analysis in order to examine how the core constructs of SDT relate to issues of broad national significance, and how individuals are in turn impacted by these societal factors (Martela & Ryan, 2023). While cross-national studies have always been present in SDT literature (Chirkov et al., 2003), and have helped establish the universality claims of SDT, we want to emphasize that the study of "pervasive environments" and national-level analysis opens up new research questions and directions for research. Specifically, while many studies have compared results between a smaller set of countries in individual-level primary studies, these designs are not able to effectively assess national-level influences due to the small number of countries are involved. National influences can be anything that are common within a country but vary between countries, such as economic conditions, governmental initiatives and policies, or national cultural values. In such analyses the sample size is determined by the number of countries, and this is why national-level covariates are typically only studied in large-scale primary data sets (such as the European Social Survey), or via meta-analyses (Slemp et al., 2024).

One example of primary data collection is Martela and colleagues (2023) research on whether basic psychological need satisfaction is similarly related to wellbeing across 27 European countries. Using data collected from the European Social Survey, a data collection project that has been ongoing since 2001, Martela and colleagues found that basic psychological needs were indeed consistent predictors of wellbeing across countries with very little variation between effect sizes, giving credence to the universality of these basic needs.

Alternatively, the national level of analysis can also be approached through meta-analysis. Slemp and colleagues (2024) provide a recent example of this in which they examined the impact of interpersonal supports for basic psychological needs across a range of different countries and contexts. Further, they incorporated an individualism/collectivism metric derived from Hofstede's (2001) values framework as a potential moderator. Slemp and colleagues established that autonomy support was associated with more positive outcomes across countries, yet samples from countries with more individualistic values were found to show a stronger connection between relatedness support and intrinsic motivation, whereas in more collectivist contexts they observed an increased connection between autonomy support and autonomous motivation, thus showing nuances in how effects are patterned by culture.

Complex social systems in this issue

A study by Bradshaw and colleagues (this issue) extends the empirical connections between SDT and philosophy, focusing on Nussbaum's philosophy of *capabilities*. Across three survey studies from multiple countries they progress the investigation into how pervasive societal conditions impact psychological need satisfaction and wellbeing (Ryan & DeHaan, 2023). Using a current measure of capabilities, Bradshaw et al. sought to identify the "active ingredients" within it that facilitate wellbeing, and whether these were accounted for by SDT's basic psychological need satisfaction and frustration. Results indicated that the opportunity for *freedom of expression* was positively correlated with wellbeing via need satisfaction. In contrast, *freedom from discrimination* was associated with reduced ill-being via the psychological need frustration pathway. This study advances SDT beyond its typical proximally-focused roots by examining how pervasive social environments impact individual functioning. It is reassuring to see that the core tenets of SDT (i.e., the importance of basic psychological needs) align with established philosophical positions, and especially the capabilities approach (Nussbaum, 2000; Sen, 2008) that formed the basis of the UN-supported and highly regarded Human Development Index (Anand & Sen, 1994).

Howard and Slemp (this issue) also address this theme as they examine temporal trends in autonomy-supportive practices of teachers in educational settings across different countries. This study takes the meta-analytic approach to national-level analysis by collecting mean scores from across primary SDT research dating back to the year 2000, and from across some 50 different countries. This study establishes that autonomy support is increasing over time globally, though at a rather modest rate, and appears to be increasing in some countries, such as China, more so than others. Additionally, this study examined whether cultural values (Hofstede, 2001), or economic circumstances (GDP, and proportion of GDP spent on education) helped to explain national level differences. As the field of SDT continues to grow, and ever-increasing amounts of data are published in primary research, these types of national-level analyses are likely to become more powerful and capable of addressing broader societal issues.

Howard and Slemp also introduce the idea of a *living meta-analysis of SDT* in which data from all existing

primary studies is centralized within a single database. From this, meta-analysts will have access to a (relatively) complete and perpetually updating database of SDT findings. Large-scale synthesis efforts such as this could enable examination of many new research questions, particularly relating to national-level research.

SDT researchers are thus now seriously considering the impact our societal institutions have on motivation, basic needs, and wellness. These influences may be less direct, yet can have hugely pervasive effects on individuals. However, we also agree with IJzerman (2020) who notes that, to have an impact on policy (Moller et al., 2006), we may have to take steps to further strengthen the theory, potentially aligning it with neighboring theories, and speaking to fields outside of psychology. Influencing institutions is a large responsibility that has implications for significant numbers of people, whether students within government-influenced education institutions (e.g. Yu et al., 2018), or public health interventions (Legate et al., 2022). With this responsibility it is incumbent upon us to ensure the evidence is rigorous and informed by strong research designs, and that we comprehensively consider the complexity, and competing priorities, of these systems in a nuanced manner.

Theoretical integration and theoretical consistency

As SDT continues to develop, we may also ask how it aligns with, or can be integrated with, neighboring theories. Some might question why we need to integrate motivation theories if each is progressing and useful in explaining certain aspects or domains of human behavior, yet combining motivation theories has been widely discussed. For example, Baumeister (2016) wrote in this very journal about the possibility of a "general theory of motivation" and its importance in the development of psychological science. A special issue in *Contemporary Educational Psychology* was dedicated to theoretical integration of motivation theories (Koenka, 2020), including SDT (Ryan & Deci, 2020). Another more recent special issue in *Educational Psychology Review* followed suit by investigating possibilities to hybridize psychology theories (Pekrun, 2024), highlighting the siloing of motivation researchers, and suggesting that transferring motivation theory into practice becomes more difficult as the number of partially overlapping theories increases.

While sympathetic towards these points of view, theoretical integration is not a simple process, as differing assumptions about human nature need to be addressed (Reeve, 2016). Combining variables from different theoretical perspectives in a mediation model alone is not what we consider theoretical integration, nor is simply listing more variables in one's model (Ryan, 2024). Rather, true integration requires a thorough examination and alignment of the underlying assumptions of human nature, levels of analysis, and a specific comparison of propositions, constructs, and operationalizations put forward by each theory. This process must be accompanied by empirical research to compare competing hypotheses, and nuanced consideration of boundary conditions.

Yet even short of integration, bringing together distinct perspectives can have benefit. An interesting example relates to Acceptance and Commitment Therapy (ACT; Hayes & King, 2024). The clinical practices of ACT appear well aligned with SDT's principles, especially the integrative, accepting stance toward emotions and experience, and an emphasis on patients' autonomy, even as the theories differ in their organismic versus behavioristic meta-psychologies (Ryan, 2024). Hontoy and colleagues (this issue) demonstrate that these theories can indeed be empirically linked. In their study, they embed SDT's distinction between intrinsic and extrinsic values within a five session ACT program for university students, testing whether ACT's experiential exercises shift value priorities in a way that satisfies basic psychological needs and, in turn, enhances well-being. Their preregistered RCT therefore moves beyond "combining variables" to a more coherent hybrid protocol, demonstrating that such theoretical interfaces can be both feasible and fruitful.

Useful too is simply clarifying the boundary conditions and overlaps of different broad perspectives on motivation. Exemplifying this was a recent discussion between Gagné and Hewett (2025) and Shaw (2025) regarding SDT and Agency Theory, and their distinct perspectives on compensation in the workplace.

Every broad scientific theory needs to have "conversations" with other theories, both neighboring and sometimes more distant. These conversations can vary in depth, and the extent of integration involved. SDT has in the past been studied alongside varied perspectives including personality systems interaction theory (PSI; Kuhl et al., 2021), motivational interviewing (MI; Markland et al., 2005), theory of planned behavior (Hagger & Chatzisarantis, 2009), job demands-resources theory (JD-R; DeHaan et al., 2024), achievement goal theory (AGT; Vansteenkiste et al., 2014) terror management theory (TMT; Vail & Horner, 2023) and many others. Hopefully comparisons, conversations, and even integration of theories and methods will continue to enrich SDT in this ongoing, iterative, process. Ultimately SDT, although primarily a psychological theory, aims toward consilience in which its findings can coordinated across multiple levels of analyses and with multiple frameworks for viewing causality.

Conclusion

Research in SDT is thriving, with ongoing work further developing and refining the theory itself and applying it to novel and important contexts. This research has yielded not only new insights, but also interventions that can improve the quality of basic psychological need satisfaction and motivation across life domains. However, the work can have broader impacts as well, not just at the level of schools or individual workplaces, but also at societal or national levels. As research in this issue illustrates, SDT has tools for examining social, economic, and political structures and their impact on peoples' basic psychological needs and capacities for flourishing. We hope the articles included in this issue also highlight some of the varied ways that SDT can be further expanded both methodologically and substantively, spurring further interest in the ongoing work of refining the theory and its applications.

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Declarations

Competing interests The authors declare no competing interests.

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