



Comments on Integration, Theory Conflicts, and Practical Implementations: Some Contrarian Ideas for Consideration

Richard M. Ryan^{1,2} 

Accepted: 25 January 2024 / Published online: 5 February 2024
© The Author(s) 2024

Abstract

The ideal of theoretical integration in motivational approaches to education is worthy, but in this commentary, I raise some (semi)contrarian concerns about both the meaning of theoretical integration and how that occurs. Integration is more than an aggregation or combination of measures but rather involves synthesis into a framework with theoretic and meta-theoretic integrity. Across disciplines and fields of inquiry, the development of science largely happens within theories and at their boundaries. Integration in practice (e.g., interventions) raises different issues, mainly concerning the coordination of elements that may address different classroom issues, and therefore can stem from multiple models and theories. I also describe the common direction and progress of motivational psychology over the past several decades, albeit with some “jingle –jangle” trends muddying our conceptual waters. Yet contrary to the view that it is our multiple perspectives that confuse teachers, I argue that confusion more centrally lies in the wide gap between our generally student-centered theories and public policies and institutional norms that hinder their implementation and their integration into practice.

Keywords Motivation · Educational theory · Integration · Self-determination theory · Jingle-jangle

It is truly an honor to be able to comment on this special issue and the series of articles within it. Each of these articles represents an authoritative attempt by top scholars to expand the field of motivation in education through cross-theoretical “fertilization” or, in a few cases, actual theoretical integration. A challenge in commenting here is that each of these arguments for theory expansions or integration itself comes from a different theoretical perspective, and while there is some convergence, the

✉ Richard M. Ryan
richard.ryan@acu.edu.au

¹ Institute for Positive Psychology and Education, Australian Catholic University, North Sydney, NSW, Australia

² Department of Education, Ewha Womans University, Seoul, South Korea

specific aims and contents of the target articles differ considerably as a function of those perspectives and what they are attempting to integrate. I hope to highlight some of these specific missions and the nature of the extensions proposed. However, not to be entirely lauding, on three themes, my commentary will be a bit contrarian.

First, it is very difficult to argue against lofty notions such as integration and cross-fertilization. Who could be opposed to such a thing? Yet the more difficult problem is: What does theoretical integration mean, and how (through what processes) does such integration occur? A strong sentiment in this special issue is that we should be actively combining distinct theories and their diverse constructs, lest we hold back science and progress. But there is a strong countertheory, one popular and enduring across the sciences (Chalmers, 2013), which holds that progress occurs through the development of often competing theories or paradigms that each attempt to claim explanatory and predictive territory. These theories will differ not only in the facts on which they focus, but even on the meanings they attach to the specific constructs they use to interpret these facts, and the importance and relevance they assign to them. They will integrate different findings with varied degrees of breadth, depth, and practical utility.

So my first (semi-)contrarian aim will be to advocate for a view in which *theories* are the frameworks into which facts, constructs, models, and mini-theories are generally integrated. I will argue against the idea that constructs from different theories can be readily or easily fused or “modeled” together without deep consideration of their fit and meaning within the new framework. And I will suggest that it is often healthier for a theory not to incorporate “foreign” constructs and principles without doing the hard work, and facing the often-complex implications of, such an assimilation.

This leads to a second contrarian point. In the call for this special issue, it was argued that we have not made much progress since the 70’s and 80’s in the field of motivation in education. The argument is that we are a fragmented and diffuse field, spreading a confusing message, and have failed to develop new theories. Several contributions to the special issue echo this sentiment concerning our slow progress, failures to advance theory, and our overly siloed research perspectives, which are said to hamper our discipline’s advance and our ability to be useful to educators.

This theme reflects a characteristic that I fear is all too common among educational psychologists (and which I also love about us). We are, if nothing else, spectacularly critical of our own field. Yet being among the oldest (though surely not the wisest) of the scholars in this special issue, I view this history somewhat differently. I believe there has been significant progress in the field of motivation in education over the past several decades. Moreover, the historical changes across these decades have, in a relatively concerted (if not fully integrated) way, shared a common general direction of becoming more learner centered. I might even argue that the shift in our common focus is revolutionary.

It is thus not any lack of commonality or convergence of the wisdom in our field that makes life confusing to teachers. Thus, in my third semi-contrarian view, I will argue that the primary sources of confusion and incoherence for translating our work into educational practice are less our differing research perspectives, but rather the clash between what we know as educational researchers and the policies, directives, and institutional cultures that regulate teachers’ classroom behaviors and goals. That

is, what we know about best practices is rarely supported by these systems level processes. It is, for example, hard to be “learner centered” when you are mandated to cover a specific curriculum, at a specific pace, and in an evaluative manner, regardless of the learner’s experience or needs. But where our findings have found their way to practice, results are often positive, demonstrating that our current bodies of knowledge can well contribute to the science and practice of education.

Our Progressing and Convergent Field

As I noted, both the introduction to the special issue and several of the essays in it contain a brief introductory section bemoaning the confusing, multi-nodal, often siloed, nature of our field. The argument is that because of this cacophonous backdrop, we have made little progress since the 70’s and 80’s (King & Fryer, 2023). This point is, I think, at least somewhat overstated.

Since the 70’s (and I was there to see it), there has indeed been a dramatic change in the field. It would be hard for young researchers today to appreciate the dominance of behavioral and cognitive behavioral perspectives in that time and the separation of that work from the largely non-empirically based but passionate humanistic perspectives of the era. Yes, the 70’s was a time when the undercurrents of change in empirical traditions began, but over the next years, the field of motivation in education specifically evolved from an emphasis on the external control of behaviors via contingent rewards, toward an emphasis on the inherent propensities and psychological needs of the active learner. Today, the focus across many of our most prominent motivation theories, including those represented in this SI, is on promoting student engagement, interest, agency, and feeling of competence. This reflects what we (Ryan & Deci, 2017) have sometimes described as the “Copernican turn” of the field of motivation—putting the learner in the center of our universe of inquiries. This may not be a full Kuhnian paradigm shift, but it comes close.

Reflecting such a focus, Martin (2023, p. 53) opens the series with three questions drawn from Pintrich (2003): “what motivates students in classrooms?”; “what do students want?”; and... “how do students get what they want?” Similarly, Fryer and Leenknecht (2023) argue that the current approach to feedback has “shifted from teacher-centered to student-centered and from transmission-centered to process-oriented” (p 5). Such student-centered perspectives speak volumes about the changes to our field, which at one time was focused on what behaviors teachers wanted and how to reinforce them. Today, almost all theories appreciate that learning requires some inner motivation on the part of students, and they commonly seek to harness and enhance that motivation.

How Does Scientific Progress Occur?

The question remains, if there has been progress, *how* did such progress occur. The answer I will offer is that it has largely happened, and continues to happen, *within* theoretical frameworks as they expand and provide explanations for what they and/or previous theories could not. Theories are the frameworks through which both

normal science and the uncovering of anomalies occur—anomalies being phenomena that are not well explained in previous theorizing or research. As Skinner (2023) argues in her piece, several theories have been very successful in elaborating and validating their principles, both theoretical and practical, with a widening explanatory net. Although some theories, either because of limiting assumptions or wrong ideas, have waned in influence, or even died off, others have undergone growth and even flourished. Reflecting this, several authors in this special issue explicitly trace the strong growth and progress of their theoretical frames. For example, Elliot and Sommet (2023) trace the history of the *hierarchical theory of achievement motivation*, and Martin (2023) reviews the development of his *Motivation and Engagement Wheel*, each of which has been expanded and refined over time.

Self-determination theory (SDT), the tradition within which I have worked for four decades, has particularly flourished, and it has done so largely in a fashion we have described as “brick by brick”—a slow assimilation of new knowledge (Ryan & Deci, 2019). For example, early work in SDT (Deci, 1975; Deci & Ryan, 1980) was important because it began to explain the phenomena of intrinsically motivated engagement, which was not within the focus of the dominant cognitive and behavioral theories of the day. But a model exclusively focusing on intrinsic motivation is insufficient to capture the driving forces of engagement and learning in schools. SDT thus then went on to develop a theory of extrinsic motivation that both explained the power of external regulations and their limitations, and how the value of non-intrinsically motivated activities can be internalized by individuals, such that they can be autonomously engaged (Ryan & Connell, 1989). So the theory was integrating what was known about external regulation within a wider framework. As findings accumulated showing that the conditions that facilitated both intrinsic and autonomous extrinsic motivation also fostered greater vitality and wellness, a theory of basic psychological needs was added to SDT, asserting that satisfactions for autonomy, competence, and relatedness are essential to mental health and flourishing (Ryan & Deci, 2002) including flourishing in schools (Curren et al., 2023; Niemiec & Ryan, 2009). Then, noting how different goal contents and pursuits more or less satisfied basic needs, SDT added a goal contents theory (see Bradshaw et al., 2023). Most recently, an additional mini-theory was incorporated into SDT addressing high-quality relationships in both vertical and horizontal interpersonal interactions (Ryan & Deci, 2017). Frameworks for the study of parenting, teacher support, and educational growth also grew out of SDT’s expanding database, formalized in specific models. Finally, especially over the past 15 years, this strong evidence base has enabled the development of evidence-supported educational interventions that are proving to be both efficacious and practical (see Reeve et al., 2022). In sum, SDT is a broad theory that has incrementally developed by accumulating research findings combined with theory development that ties each of these strands of research together. In this way, SDT exemplifies how systematic knowledge grows *within* theoretical frames.

Progress also happens at the boundaries between frameworks as each tries to assimilate (successfully or not, and fully or not) the phenomena at hand. Dinsmore et al. even argue that: “the heroes here are those that work across the boundaries of theoretical and methodological divides...” (p 13). While I agree, I think the very

concept of *boundaries* generally refers not to the edges of knowledge, per se, but of theories. In other words, a boundary is defined by the framework of ideas that is finding its limits or meeting its challenges. As Argamakova (2018) describes, anomalies are both sources of trouble for a theory and the impetus for creative work. Problem solving with respect to these theory defined boundaries and anomalies is thus a primary source of growth in science.

When there is not strong theory, researchers may throw together concepts into loose models, but whatever results from that still must be given theoretical sense. It must be interpreted to be meaningful and useful. Some interpretations of these variables, if not thoughtful, can often violate basic assumptions of the theories from which they draw, or even generate contradictory ideas. This results in what Dinsmore et al. (2023) described as a “poor quality alloy.” Thus, I agree with their argument that “finding the convergences and divergences of models and fusing them together will not be effective unless the underlying metatheoretical assumptions of each model and the resulting fused model are considered and made explicit” (p.15).

Models Versus Theories

It is also the case that as researchers we often develop “local” models of phenomena that may focus on a subset of variables, processes, or their determinants. Models are useful and usually, given their simplicity, can be grounded in empirical support. For example, a dichotomy that says “attitude x is superior to attitude y, a difference mediated by z” is not a theory, but a statement of relations between variables. It only becomes a theory when the model expands to define the roots of such differences and the variables that impact them over time. Moreover, a theory situates the model within a larger body of thought. Models can have value in developing ideas and practices, and they are also a fertilizer for those theories and conceptual frameworks that are broad enough to absorb and refine them. The larger the theory (the wider its explanatory net), the more it must have an account of varied models in its territory and on its fringes.

Yet it is important to recognize that theories with specific underlying assumptions and frameworks also differ in their integrative span. Some have no business trying to integrate others. A “model” cannot integrate a theory, but a theory can integrate a model. A theory can also integrate another theory (potentially) but usually not without serious alterations to both.

Should We Throw Disparate Constructs Together?

An aspiration, expressed from the beginning of this special issue, is that ideas should become un-siloed. But I suggest this, while a laudable sentiment, warrants strong qualifications. Some theories can be meaningfully logically and empirically blended, some not so much. Whereas integrated theories provide organization and meaning for abstract constructs and connect them with associated research findings, fused theories may simply end up being more like lists or collections of variables with unclear criteria for inclusion or exclusion and often present challenging

psychometrics because of overlapping variances. Said differently, piling up variables or models does not a theory make. A theory brings variables and models into an organized relation with one another and with the theory's underlying epistemology and philosophical meta-theory. There can thus be expansion without integration even within the most popular of frameworks. A salient example of this is the "PERMA" model (Seligman, 2011) in positive psychology, often described as a theory, but which includes disparate and overlapping constructs without a clear meta-theory.

When a person is guided by a theory, they know what to prioritize and what is contingent. They also know what they do not know. In this regard, what Martin (2023) referred to as "sins of omission," where some motivation factors are not included in a given model even if they are represented in others, may not always be a bad thing. In SDT, we have specifically argued that good theories can often weather omissions of phenomena they are not ready to assimilate but can often collapse under the weight of swallowing too much; making assertions or including variables that are outside their integrative span.

Errors of commission are more harmful to a theory, because they suggest a lack of careful validation and can lead both fellow researchers and practitioners astray (see discussion by Ryan & Deci, 2019). As an example, consider SDT's broad claims that autonomy is a basic psychological need and thus universally important for well-being. Casting doubt on this claim was assertions by some researchers that autonomy is not a basic need for those in East Asian cultures and reflects instead a particularly Western value (e.g., Markus & Kitayama, 2003). These counter claims undoubtedly inspired many researchers and perhaps led some educators to discount the value of autonomy-support in collectivist educational contexts. Luckily for SDT, subsequent data have yielded strong meta-analytic evidence supporting the universality position (e.g., Yu et al., 2018; Slemp et al., *in press*). Indeed, within educational research, the meta-analytic evidence suggests that both student (Howard et al., 2021) and teacher (Slemp et al., 2020) autonomy predict better outcomes across cultures. Had this not been the case, a fundamental assumption of SDT would have been falsified, and an error of commission revealed, raising concerns with the theory's general validity. On the positive side, such controversies can highlight the importance of exacting definitions of constructs, such as distinguishing autonomy from concepts easily conflated with it such as independence, separateness, and freedom from constraints (Ryan & Deci, 2017).

Jingle-Jangle Issues

Several contributions to this special issue described one of the knottier issues plaguing not only educational research in motivation, but psychology more generally, namely, the well-termed *jingle-jangle problem* (Marsh, 1994). *Jingle* occurs when two constructs (or measures of them) are distinct but are named the same; *jangle* is in evidence when two constructs or measures are identical, but distinctively named.

Perhaps the strongest impetus to jingle jangle is pressure on scholars to be "original" (by all means not derivative!) and to be visible (say something splashy!).

Novelty and splash draw citations, which incentivizes both editors and scholars to be attracted to them. Such incentivization of novelty and visibility in our field can clearly detract from the pursuit of “normal” science, in the Kuhnian sense, of working within the existing frameworks of theory, and of engaging in slower, more careful, validation. This is also a source of jangle as well, as authors feel a pull to put new labels on old wine.

But there is another reason for jingle jangle with, I think, more integrity. Within different theoretical frameworks nuanced definitions matter. Distinct terms have the intention of establishing or highlighting those nuanced differences, bringing more specificity to models and predictions. Many of our motivational and self-concept constructs are especially prone to jangle. We have closely related concepts with different names. But what makes two constructs *similar enough* to be considered identical? For instance, Marsh et al. (2019) argued that the constructs of academic self-concept and academic self-efficacy are in some analyses overlapping enough to be considered jangle. Similarly, Ponnock et al. (2020) presented analyses indicating to them that the popular concepts of *grit* and *conscientiousness* represent jangle (Ponnock et al, 2020). Close inspection of most of our concerns with jangle reveals, in fact, a continuum from very similar (different in specific nuanced ways) to identical requiring a rationale for where we draw the line.

Given this, it thus becomes essential as part of our practice to have clarity in our own definitions and an explicit argument for what distinguishes any newly introduced construct from what already exists. These distinctions can be made both empirically and rationally, and such evidence-supported justifications improve theory by drawing sharper edges where needed. Moreover, there are specific steps researchers can take to make sure that closely associated constructs do not lead to theoretical or methodological chaos. Lawson and Robins (2021), for example, provide excellent guidance for addressing jingle-jangle issues, laying out statistical procedures and conceptual criteria by which to identify identical constructs that are nominally distinct and distinct constructs that are similarly labeled. I would extend this to the larger issue of the predictions made by theories operating in the same area of study (Lawson and Robbins call them “sibling theories”). Understanding what is identical and distinct in predictions is a clarifying and science-advancing adventure and is well within our existing methodologies to accomplish. Nonetheless, as we highlighted above, the dynamics of our field would need to support such efforts at detailed construct validation, and such scholarship would need to be more institutionally valued.

What Theoretical Integration Really Means

So while we can always throw multiple constructs from varied sources into our charts and models, doing so is not always coherent or integrated. As a researcher and theorist who works in an *organismic* tradition, the concept of *integration* holds particular significance and specific meaning. In organismic thinking, propensities toward integration are a defining characteristic of living entities. Organisms are said move toward greater integration where possible—toward actively assimilating and

synthesizing new experiences and behavioral regulations. In this tradition, integration is differentiated from other types of growth or expansion; it is not just adding or combining elements but rather bringing them into a truly coherent, organized whole.

The same is true of true *theoretical integration*, which would involve a genuine synthesis of different theories or models into a coherent and internally consistent perspective. This is a strong criteria. A true synthesis goes beyond a simple aggregation of variables or of theories. It involves creating new insights, frameworks, or models that capture the strengths and address the limitations of the individual theories being integrated. It also grounds its synthesis in a proper and consistent set of assumptions and meta-theory. The goal is to develop a more comprehensive and robust perspective that provides a deeper understanding of the phenomenon under study and more than ad hoc findings. If integrative, such efforts supply hypotheses and formulations for new or novel problems as these arise (Witte et al., 2022). So it is important to distinguish mere additions, and even cross-fertilizations, from true integration.

This does not mean that variables from different theories cannot usefully be combined. In this special issue, Elliot and Sommet (2023) detail how achievement goal theory (AGT) has begun to combine measures of mastery versus performance goals with SDT's concept of autonomy, creating a new construct called a *goal complex*. The ontological basis of this combination of variables is of course an open question. But beyond that more basic level of inquiry, previous empirical evidence (e.g., Gillet et al., 2015; Vansteenkiste et al., 2010, 2014) suggests that the relative autonomy of motives will represent a particularly potent variable in this mix. Of most relevance to the current discussion is thus how assimilating a variable from a different tradition will affect the AGT framework. Autonomy, as an organismic variable, is more than an attribution, but rather a reflection of internal coherence and motivational quality, with implications related to its development, dynamics, and impacts on wellness and performance. This then raises the question: If AGT truly "integrates" the idea of autonomy, will it move toward a theory of autonomy support? Will AGT even more strongly decry controlling forms of goal setting in the classroom? Will it endorse an organismic metatheory from which autonomy gets its meaning and definition, or instead treat autonomy as (merely) a cognitive phenomenon? I raise these questions to highlight that "incorporating" a construct like the autonomy continuum of SDT is more than merely adding a variable; it will come with considerable baggage because of its deep implications at both organismic and philosophical levels. I trust and hope that AGT researchers will be grappling with the deep ramifications of this inclusion going forward.

Similarly, Fryer and Leenknecht (2023) suggest that issues related to SDT's construct of *structure* (which includes both teacher clarity and effectance-oriented feedback) have been linked with perceived competence within SDT, but not to the literature of self-efficacy as conceived within a social cognitive view (Bandura, 1977). But hindering that effort is not just artificial silos, but rather strongly differing assumptions in the respective underlying theories. Specifically, SDT emphasizes the importance of *autonomy supportive structure* (Reeve, 2023), whereas social cognitive theory explicitly rejects the notion of autonomy as meaningful or useful (see Bandura, 1977). Moreover, self-efficacy specifically concerns outcome expectations,

whereas in SDT, experiences of competence need not always be outcome focused, as in many intrinsically motivated activities. Finally, SDT sees the importance of autonomy support and structure as essential to promoting engagement and performance, and it takes the view that autonomy supportive structure impacts multiple needs. Constructs such as perceived control (Rotter, 1966) as classically defined are also typically outcome focused and thus do not encompass that sensibility concerning supports for autonomy and volition, or the practical advice corresponding to it. Noting that considerable research supports the efficacy of autonomy supportive structure (e.g., Jang et al., 2010; Reeve, 2023), Fryer et al. thus suggest the importance of “situating support for students’ control beliefs within a broader network of emotional and motivational support” (p 18) as SDT also advocates. My suggestion is that whereas AGT’s inclusion of autonomy support as a process variable and individual difference within a complex (Elliot & Sommet, 2023) could potentially expand that theory’s scope and assumptions, social cognitive theory could not incorporate SDT’s views of competence growth without a radical change in its philosophical foundations.

Skinner (2023) argues that identifying commonalities, overlaps, and complementary aspects among different theories is helpful in integrating them. But it further involves examining the underlying assumptions, concepts, and principles of each theory and finding ways to reconcile, definitively dispute, or upgrading them into a more comprehensive understanding. Achieving such theoretical integration can be challenging, and it may not always be possible to integrate all aspects of every theory into a single unified framework. The level and extent of integration will depend on the nature of the theories involved, the specific research context, and the goals of the integration effort. So we accept that even some clearly similar ideas (e.g., self-efficacy and perceived competence) may be appropriately residing in separate theoretical frames.

Integration Within Interventions

Although I have raised skepticisms regarding theoretical integration, another focus in some articles in this special issue is on integrating different theoretical notions within interventions (e.g., Martin, 2023; Skinner, 2023). In principle, as long as techniques and processes within different theories can be coordinated and are not contradictory to one another, they can be combined in interventions without confusion. Different theories focus on different aspects of the classroom. Dinsmore et al. (2023) in fact show how different theory frames may offer elements that can well be practically synthesized in teacher instruction.

Well-constructed but distinct theories can be coordinated *within* interventions, as different theories may address different aspects of a problem or shed more light on different populations. Applying multiple theories and knowledge frameworks in one’s practice is common in many professions, from engineering to psychotherapy, where real-world problems can be diverse, and school-based practice is no exception.

Some theories, because they share underlying assumptions and a common focus, are readily combined in practice. Hornstra and colleagues (2023) make this case for integrating in practice *teacher expectation theory* and SDT, which although stemming from very different origins converge in emphasizing the importance of a positive classroom climate in which progress rather than comparisons of ability are the focus. Moreover, they suggest that high-expectations can and should be communicated in need supportive ways. Similarly, Ng (2023) has overviewed the ready pairing of SDT and socio-emotional learning (SEL) strategies within classroom and school-based interventions. Yet not all theories can be as easily integrated, and some may even be contradictory. For instance, SDT has a very specific definition of a *basic psychological need* as something essential to full functioning and wellness. But some theories define this concept of need more loosely, ending up with list of needs that do not square with that definition and thus do not represent an integration.

The article by Noetel et al. (2023) on prediction versus explanation in motivation science is particularly interesting as an attempt to identify active behavioral ingredients of engaging teaching that could inform interventions. Their methodology is drawn from Ahmadi et al. (2023), a study in which I was on the large team of investigators. In that exploratory work, we tried to list a wide range of teacher behaviors and rate their relevance to various theoretical ideas about how teachers facilitate engagement. Most ratings were probabilistic. Yet, as an SDT researcher, most of my behavioral ratings were made with qualifications. I would consider a given target behavior and frequently think: “it depends.” For example, providing “praise” could in SDT be an element of structure (positive feedback) and thereby promote competence and engagement. But praise can be manipulative, controlling, comparative, or pressuring, so the same “behavior” can have a quite different, and even opposite, effect. Noetel et al. then had students report their perceptions of their teacher’s employment of these behaviors. Again, construal is involved, now at the student level. The ratings depend on the salience and the *functional significance* (Deci & Ryan, 1980; Ryan & Deci, 2017) of these behaviors to the students. So the items need to be understood as “perceived behaviors” and that the ties between these items and their explanatory frameworks are more probabilistic than one might imagine from a term like *behavior*, which sounds like something directly observed. Noetel et al. find in their study that very few of these behavioral items ended up reliably predicting engagement, and that, as a package, the culled list of behaviors did not match well within any framework. But that may be a problem more with a focus on behaviors, rather than on the teacher attitudes, values, and demeanor that color how students perceive these behaviors. From an SDT perspective, it is argued that the most central focus of interventions is promoting an attitude and sensibility of autonomy support, including a consideration of the student’s viewpoint and perspective, out of which every action and behavior then emanates (see Reeve et al., 2022). All the SDT techniques we offer to educators are grounded in that basic attitude and value set that undoubtedly shape how the behaviors are perceived.

A further thought as well. Noetel et al. claim that researchers rarely test their existing models on new data—that is, data that is not drawn from the sample on which their models have been derived and refined. It is implicitly suggested that this is why their effect sizes are larger than those obtained in this study (which are

small). But I believe cross-validation is less rare than claimed. Speaking only from SDT, the constructs and models we develop to predict student outcomes have been repeatedly tested on new data. They have been replicated in samples of students at different levels of education, in different cultures, and in different topic areas from physical education to medical schools (e.g., Howard et al., 2021; Neufeld & Malin., 2020; Vasconcellos et al., 2020). This is also true of other theories represented in this special issue. Many of these theoretical models (and here I include AGT, SDT, and SCT among others) have also been tested prospectively and longitudinally, showing predictive value. The claim that we researchers are normatively refitting our models within a single data to maximize the variance accounted for thus seems overstated, at least with respect to these well researched and often meta-analytically supported theoretical models. Nonetheless, and more importantly, Noetel et al. show how one can accomplish cross-validation even within a single data collection, supplying another pathway to this important practice.

Are Motivation Researchers the Source of Confusion in Education?

One of the repeated claims in this special issue is that our different theories are a source of confusion for teachers, and to be more helpful, we should integrate our perspectives. But here again I will be (semi-)contrarian. There are often difficulties and obstacles in integrating our (largely) student-centered perspectives into classroom practice. But I work in a lot of schools and confusion about our different theories is something I have rarely observed. Instead, the obstacles and the difficulties are not conflicts between academic theories, which, as I argued earlier, commonly point toward a student-centered attitude that includes informational feedback and strong interpersonal supports. Instead, any confusions and obstacles tend to stem from the lack of fit between the kinds of supportive teaching and classroom practices our evidence supports and what educational policies too often mandate. Policy makers often have an *outcome focus*—for example, they place pressure on institutions to achieve performance on standardized test score improvements (Ryan et al., 2023). In doing so, they drive out the process-oriented orientations needed to optimally develop and engage learners. Attempting to ensure prespecified outcomes, they mandate inflexible contents, timelines for delivery, and regular testing, with an implicit theory that these are somehow the pathway to school achievement, where in reality they are the pathways to disengagement for many students and teachers alike. The same is true of unexamined institutional practices like grading, which is pervasive in classrooms everywhere. We can see the drawbacks of grading from the evidence of multiple perspectives, but many teachers find that the use of grades is both normative and required.

The irony then is that these top-down prescriptions and institutional norms are quite often completely out of sync with what most all our theories hold dear—things like respect for and cultivation of student interests and autonomy, the provision of optimally challenging tasks, making learning relevant, the removal of excessive evaluation and threat from learning climates, and the creation of a learning community rather than a comparative or competitive focus. In fact, Ryan et al. (2023)

argue that the group-level achievement focus of schools crowds out the more important goal of helping all students flourish. Not all students will hit the benchmarks politicians want to see, but *all* students deserve to have schools that do not harm them, kill their confidence, crush their vitality, or diminish their self-esteem. More positively, they deserve schools that facilitate their development as both learners and citizens. I think it is important for every theorist to wonder how their own framework plays into this dynamic.

We recently presented a book detailing how a typical SDT-based intervention works (Reeve et al., 2022). In it, we detail how, when workshops begin, there are often doubters and skeptics. There are some teachers who reasonably question “how this will help?” But the evidence (which we also detail) shows that as the workshop proceeds, not only is it broadly understood but it is nearly universally found to be both practical and helpful by teachers. We have no doubt that some of the other interventions discussed in this special issue are also quite well received.

Yet even though our interventions can be effective and clear, the conflict between supporting students’ needs and school policies and practices can be confusing. Some weeks after a workshop this past summer with Belgian teachers, I received a letter from one of the participants. This teacher spoke of the “extraordinary gap between evidence and practice” he witnessed when returning back to his school. He continued:

“I have not found one integrated school *policy* measure that reflects the SDT findings. Some school leaders excelled in verbally stressing the basic elements to create a positive class and school climate that fosters flourishing and well-being...but in fact, these school leaders condoned or implemented the exact opposite: punishment is the norm, and team meetings discussing the progress of students shine with the use of negative, moralistic, and demeaning language, etc.”

As Street (2018) cogently observes, “ideals need to be supported within the context they are delivered” (p. 25). We can have well research and accurate theories about what fosters individual motivation and wellness, but if these lessons are ignored at an institutional level, even supportive teacher behaviors will not necessarily counteract the overall situation. We can, for example, demonstrate the superiority of mastery goals (Elliot, 2005), but one sees comparative grading as the everyday grist of classrooms. One can advocate for the promotion of interest (e.g., Renninger & Su, 2012), but one sees teachers hamstrung by constraints limiting their time and ability to engage topics of relevance to students, or issues about which they are curious. One can push for high expectations concerning personal progress (Hornstra et al., 2023), but that effort can be undermined by one-size-fits-all curricular mandates and high stakes standardized testing.

So although there can be conflict and “jingle-jangle” issues between our motivational perspectives, I submit that the most important conflicts here are not between SDT and AGT, which both emphasize mastery goals; or between Martin’s motivation wheel and HET, which both emphasize scaffolding; or between SDT and expectancy-value theories, which both emphasize a focus in progress and support for intrinsic motivation and internalization; or between SRL and SCT, which both focus on task self-efficacy. The salient conflict is between nearly all of these

relatively student-centered theories and the implicit and explicit policies we can observe in educational institutions and the practices and pressures they dictate.

If we have failed to progress since the 70's and 80's, as is the claim in the special issue's introduction, I suggest it is not primarily because we have failed to develop more refined methods and ideas, or because we have not coordinated our perspectives into a single model. It is because we have failed to have an impact on school policies that negatively impact motivation, engagement, and self-concepts in so many palaces across the globe. And while we focus most of our interventions on teachers, they can usually at best provide shelter from the storm, as the supports they can afford students must happen within constraints on their own autonomy (Ryan et al., 2023). We are far from implementing school *cultures* that can in a sustained way implement even our best our evidence-based theories of student motivation.

Having expressed some contrarian views on some forms of combining theories and constructs, none of my comments should suggest we should merely exist in silos. I know as one theorist I am always looking for advances in the field, and where appropriate allowing them to inform SDT. I am sure all the other authors in this special issue do the same. We can learn from distinct theories and strive to coordinate that knowledge into our theoretical frameworks. My concern is that we do not mistake charts, figures, models, or lists of variables as constituting a theory. And if we as scholars take the idea of *theories* seriously, we should demand a lot from them—including a fully considered and explicit meta-theory and philosophic grounding, a solid set of links between abstract constructs and empirical data, a consistent set of priorities and aims, and the psychological sensibilities that should follow from these. Thus, my hope is that these comments inform our reflections on theory integration and cross-fertilization as we continue to progress in the science and practice of motivation.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Ahmadi, A., Noetel, M., Parker, P., Ryan, R. M., Ntoumanis, N., Reeve, J., ... Lonsdale, C. (2023). A classification system for teachers' motivational behaviors recommended in self-determination theory interventions. *Journal of Educational Psychology*, 115(8), 1158–1176. <https://doi.org/10.1037/edu0000783>
- Argamakova, A. (2018). Modeling scientific development: Lessons from Thomas Kuhn. In M. Mizrahi (Ed.), *The Kuhnian image of science* (pp. 45–60). Rowman and Littlefield.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191–215.

- Bradshaw, E. L., Conigrave, J. H., Steward, B. A., Ferber, K. A., Parker, P. D., & Ryan, R. M. (2023). A meta-analysis of the dark side of the American dream: Evidence for the universal wellness costs of prioritizing extrinsic over intrinsic goals. *Journal of Personality and Social Psychology*, 124(4), 873–899. <https://doi.org/10.1037/pspp0000431>
- Chalmers, A. F. (2013). *What is this thing called science?* Hackett Publishing.
- Curran, R., Boniwell, I., Ryan, R. M., Oades, L., Brighouse, H., Unterhalter, E., Kristjánsson, K., de Ruyter, D., Macleod, C., Morris, I., & White, M. (2023). Finding consensus on well-being education. [Manuscript submitted for publication].
- Deci, E. L. (1975). *Intrinsic motivation*. Plenum.
- Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 39–80). Academic Press. [https://doi.org/10.1016/S0065-2601\(08\)60130-6](https://doi.org/10.1016/S0065-2601(08)60130-6)
- Dinsmore, D. L., Fryer, L. K., & Dumas, D. G. A. (2023). Theoretical and metatheoretical reframing of the development of cognitive processing and learning. *Educational Psychology Review*, 35, 66. <https://doi.org/10.1007/s10648-023-09789-3>
- Elliot, A. J. (2005). A conceptual history of the achievement goal construct. In A. Elliot & C. Dweck (Eds.), *Handbook of competence and motivation* (pp. 52–72). Guilford Press.
- Elliot, A. J., & Sommet, N. (2023). Integration in the achievement motivation literature and the hierarchical model of achievement motivation. *Educational Psychology Review*, 35, 77. <https://doi.org/10.1007/s10648-023-09785-7>
- Fryer, L. K., & Leenkecht, M. J. M. (2023). Toward an organising theoretical model for teacher clarity, feedback and self-efficacy in the classroom. *Educational Psychology Review*, 35, 68. <https://doi.org/10.1007/s10648-023-09787-5>
- Gillet, N., Lafrenière, M.-A., Huyghebaert, T., & Fouquereau, E. (2015). Autonomous and controlled reasons underlying achievement goals: Implications for the 3 × 2 achievement goal model in educational and work settings. *Motivation and Emotion*, 39(6), 858–875. <https://doi.org/10.1007/s11031-015-9505-y>
- Hornstra, L., Stroet, K., Rubie-Davies, C., & Flint, A. (2023). Teacher expectations and self-determination theory: Considering convergence and divergence of theories. *Educational Psychology Review*, 35, 76. <https://doi.org/10.1007/s10648-023-09788-4>
- Howard, J. L., Bureau, J. S., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from self-determination theory. *Perspectives on Psychological Science*, 16(6), 1300–1323. <https://doi.org/10.1177/1745691620966789>
- Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure, but autonomy support and structure. *Journal of Educational Psychology*, 102(3), 588–600. <https://doi.org/10.1037/a0019682>
- King, R., & Fryer, L. K. (2023). *Hybridizing motivational strains: How integrative theoretical models can advance the motivational sciences*. Educational Psychology Review.
- Lawson, K. M., & Robins, R. W. (2021). Sibling constructs: What are they, why do they matter, and how should you handle them? *Personality and Social Psychology Review*, 25(4), 344–366.
- Markus, H. R., & Kitayama, S. (2003). Models of agency: Sociocultural diversity in the construction of action. In V. Murphy-Berman & J. J. Berman (Eds.), *Nebraska Symposium on Motivation* (pp. 18–74). University of Nebraska Press.
- Marsh, H. W. (1994). Sport motivation orientations: Beware of the jingle-jangle fallacies. *Journal of Sport and Exercise Psychology*, 16, 365–380.
- Marsh, H. W., Pekrun, R., Parker, P. D., Murayama, K., Guo, J., Dicke, T., & Arens, A. K. (2019). The murky distinction between self-concept and self-efficacy: Beware of lurking jingle-jangle fallacies. *Journal of Educational Psychology*, 111(2), 331.
- Martin, A. J. (2023). Integrating motivation and instruction: Towards a unified approach in educational psychology. *Educational Psychology Review*, 35, 54. <https://doi.org/10.1007/s10648-023-09774-w>
- Neufeld, A., & Malin, G. (2020). How medical students' perceptions of instructor autonomy-support mediate their motivation and psychological well-being. *Medical Teacher*, 42(6), 650–656. <https://doi.org/10.1080/0142159X.2020.1726308>
- Ng, B. (2023). Understanding socioemotional learning in schools: A perspective of self-determination theory. In B. Ng (Ed.), *Self-determination theory and socioemotional learning* (pp. 3–18). Springer.
- Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, 7(2), 133–144. <https://doi.org/10.1177/1477878509104318>

- Noetel, M., Parker, P., Dicke, Beauchamp, M. R., Ntoumanis, N., Hulteen, R. M., ... Lonsdale, C. (2023). Prediction versus explanation in educational psychology: A cross-theoretical approach to using teacher behaviour to predict student engagement in physical education. *Educational Psychology Review*, 35, 73. <https://doi.org/10.1007/s10648-023-09786-6>
- Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95, 667–686. <https://doi.org/10.1037/0022-0663.95.4.667>
- Ponnock, A., Muenks, K., Morell, M., Yang, J. S., Gladstone, J. R., & Wigfield, A. (2020). Grit and conscientiousness: Another jangle fallacy. *Journal of Research in Personality*, 89, 104021.
- Reeve, J. (2023). Cognitive evaluation theory: The seedling that keeps self-determination theory growing. In R. M. Ryan (Ed.), *The Oxford handbook of self-determination theory* (pp. 33–52). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780197600047.013.60>
- Reeve, J., Ryan, R. M., Cheon, S. H., Matos, L., & Kaplan, H. (2022). Supporting students' motivation. *Taylor & Francis*. <https://doi.org/10.4324/9781003091738>
- Renninger, K. A., & Su, S. (2012). Interest and its development. In R. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 167–187). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780195399820.013.0011>
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 80(1), 1–28.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57(5), 749–761. <https://doi.org/10.1037/0022-3514.57.5.749>
- Ryan, R. M., & Deci, E. L. (2002). Overview of self-determination theory: An organismic dialectical perspective. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3–33). University of Rochester Press.
- Ryan, R. M., & Deci, E. L. (2017). Self-determination theory: Basic psychological needs in motivation, development, and wellness. *The Guilford Press*. <https://doi.org/10.1521/978.14625/28806>
- Ryan, R. M., & Deci, E. L. (2019). Brick by brick: The origins, development, and future of self-determination theory. In A. J. Elliot (Ed.), *Advances in motivation science* (Vol. 6, pp. 111–156). Elsevier.
- Ryan, R. M., Reeve, J., Kaplan, H., Matos, L., & Cheon, S. H. (2023). Education as flourishing: Self-determination theory in schools as they are, and as they might be. In R. M. Ryan (Ed.), *The Oxford handbook of self-determination theory* (pp. 591–618). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780197600047.013.60>
- Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press.
- Skinner, E. A. (2023). Four guideposts toward an integrated model of academic motivation: Motivational resilience, Academic identity, complex social ecologies, and development. *Educational Psychology Review*, 35, 80. <https://doi.org/10.1007/s10648-023-09790-w>
- Slemp, G. R., Field, J. G., & Cho, A. S. (2020). A meta-analysis of autonomous and controlled forms of teacher motivation. *Journal of Vocational Behavior*, 121, 103459.
- Slemp, G. R., Field, J. G., Ryan, R. M. Forner, V. W., Van den Broeck, A., & Lewis, K. J. (In press). Interpersonal supports for basic psychological needs and their relations with motivation, well-being, and performance: A meta-analysis. *Journal of Personality and Social Psychology*.
- Street, H. (2018). *Contextual wellbeing: Creating positive schools from the inside out*. Wise Solution Books.
- Vansteenkiste, M., Smeets, S., Soenens, B., Lens, W., Matos, L., & Deci, E. L. (2010). Autonomous and controlled regulation of performance-approach goals: Their relations to perfectionism and educational outcomes. *Motivation and Emotion*, 34(4), 333–353. <https://doi.org/10.1007/s11031-010-9188-3>
- Vansteenkiste, M., Lens, W., Elliot, A. J., Soenens, B., & Mouratidis, A. (2014). Moving the achievement goal approach one step forward: Toward a systematic examination of the autonomous and controlled reasons underlying achievement goals. *Educational Psychologist*, 49(3), 153–174. <https://doi.org/10.1080/00461520.2014.928598>
- Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., Lee, J., Antczak, D., Ntoumanis, N., Ryan, R. M., & Lonsdale, C. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. *Journal of Educational Psychology*, 112(7), 1444–1469. <https://doi.org/10.1037/edu0000420>

- Witte, E. H., Stanciu, A., & Zenker, F. (2022). Predicted as observed? How to identify empirically adequate theoretical constructs. *Frontiers Psychology, 13*, 980261. <https://doi.org/10.3389/fpsyg.2022.980261>
- Yu, S., Levesque-Bristol, C., & Maeda, Y. (2018). General need for autonomy and subjective well-being: A meta-analysis of studies in the US and East Asia. *Journal of Happiness Studies, 19*, 1863–1882.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.