Autonomy and developing physicians: Reimagining supervision using self-determination theory

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Abstract

In this article, we address the question, 'What is the role of autonomy in physician development?' Medical education is a developmental process, and autonomy plays a motivational role in physician development. Calls for increased supervision of residents have raised concerns that the resulting decreased autonomy might interfere with resident development, leading the authors to explore the relationship between supervision and autonomy. The medical education literature posits a simple inverse relationship between supervision and autonomy. Within competency frameworks, autonomy is operationalised as independence and viewed as the end goal of training. Alternatively, there is emerging empirical literature describing autonomy and supervision as dynamic and developmental constructs and point towards more complex relationship between supervision and autonomy. Self-determination theory (SDT) presents a framework for understanding this dynamic relationship and the role of autonomy in physician development. Within SDT, autonomy is a fundamental psychological need, associated with motivation for learning, self-regulation and an internal locus of control. Supporting learner autonomy can afford learners the opportunity to internalise the values and norms of the profession, leading to an integrated regulation of their behaviours and actions. Conceptualising autonomy through the lens of SDT provides an avenue for education interventions and future research on supervision and autonomy. Educators can integrate supervision and autonomy support in the clinical setting, seeking to motivate learner development by balancing optimal challenge and support and integrating autonomy support with 'hands-on' approaches to supervision. SDT also provides a theoretical framework relevant to current discussions regarding feedback conversations and coaching in medical education. Lastly, conceptualising autonomy using SDT opens new avenues for investigation, exploring the complex relationship between supervision and autonomy and developing efforts to integrate autonomy support with clinical supervision.

1 | INTRODUCTION

In this article, we address the question, 'What is the role of autonomy in physician development?' by exploring the relationship between supervision and autonomy in the clinical learning environment. We propose a reconceptualisation of this relationship that moves away from autonomy as independence from supervision and towards a concept of supervision grounded in autonomy support

based on self-determination theory.[1] In doing so, we ignore other discussions on autonomy within medicine, including the social and legal implications of conceptualising medicine's status as an autonomous, self-regulating profession[2] and issues of patient autonomy and patient-centred care.[3,4] While these are important conversations, we have chosen to focus specifically on autonomy and supervision within the context of clinical training for physician-trainees.

We also need to define what we mean by 'physician development'. Medical education is a developmental process, addressing the formation of effective medical practitioners with the necessary knowledge, skills and professional identity.[5] That development, known as professional identity formation (PIF), happens at both an individual, psychological level, as well as a collective, sociological level, and is characterised by the conscious and unconscious acquisition of values and norms of the profession gained through experience, role models and mentors.[6,7] Autonomy has long been studied in conjunction with the development of physicians in training, linking learner autonomy with increased learner confidence, improved clinical decision-making skills, increased sense of patient responsibility and ownership, increased readiness of independent practice and an enhanced development of professional identity.[8-12] Within the clinical learning environment, autonomy provides opportunities for learners to make 'real' decisions for patient care, facilitating the development of confidence in clinical decision making and responsibility for patient care.[8] Alternatively, decreased autonomy can foster feelings of ambivalence in learners leading to decreased feelings of responsibility along with a decreased sense of 'professional becoming' due to decreased opportunity to take on the role of physician.[8,13] These findings suggest that autonomy may play a motivational role in physician development and that medical education may benefit from a definition of autonomy that incorporates development and motivation.

Given the perceived benefits of autonomy and the risks of its absence, there is growing concern that the patient safety movement, with its calls for increased trainee supervision, threatens learner autonomy within the clinical learning environment.[9,10,14] Such concerns are based on fear that increased supervision will reduce learners' autonomy and thus might interfere with the development of independent, expert physicians.[10,15] These concerns over increased supervision, decreased independence and the subsequent decrease in trainee autonomy lead us to the question: 'What is the relationship between supervision and autonomy in clinical training?'

2 | THE COMPLEX RELATIONSHIP BETWEEN SUPERVISION AND AUTONOMY

The medical education literature posits a simple inverse relationship between supervision and autonomy (ie as supervision increases, autonomy decreases). Within competency frameworks, autonomy is used synonymously with independence and therefore viewed as the end goal of training. This understanding of autonomy has also led to conflicting evidence about the relationship between clinical supervision and learner autonomy within medical education research. Thus, we propose a more complex relationship between supervision and autonomy that allows for autonomy support within supervision.

Current competency-based medical education (CBME) frameworks use language that implies an inverse relationship between supervision and autonomy, often relying on a variety of different phrases to represent autonomy. For example, the Accreditation Council for Graduate Medical Education (ACGME) conceptualises residency training as 'the crucial step of professional development between medical school and autonomous clinical practice'[16] where residents care for patients in a workplace learning environment 'with appropriate faculty supervision and conditional independence, allowing residents to attain the knowledge, skills, attitudes, and empathy required for autonomous practice'.[16] Within the ACGME framework, competency-based goals and objectives are 'designed to promote progress on a trajectory to autonomous practice', and assessments of resident progress utilise the language of competence and trust, ending with residents deemed 'ready for unsupervised practice'.[16,17] Faculty members assess residents and delegate the 'privilege of progressive authority and responsibility, conditional independence and a supervisory role in patient care',[16] while recognising that 'promoting progressive autonomy' is part of the responsibility of the residency programme to address resident well-being.[16] At the end of residency training, 'the senior trainee should demonstrate readiness to make the transition to autonomous practice: for example, acting as a chief resident, running an ambulatory clinic, performing procedures with increasing autonomy and teaching others'.[18] Concepts that represent autonomy permeate CBME frameworks, using the word 'autonomy' interchangeably with phrases like increasing independence, decreasing supervision and increasing responsibility for patient care.[14,16,17,18,19,20,21] Using these terms interchangeably implies an inverse relationship between supervision and autonomy, where the goal of education is to decrease supervision and increase autonomy.[22] This may lead to misconceptions of the role of supervision and autonomy in graduate medical education.

The notion of a simple inverse relationship extends into the medical education literature, where concerns about increasing supervision have prompted studies exploring the association between levels of supervision and perceptions of learner autonomy. Within a large scoping review on the educational role of autonomy, autonomy was defined as 'one who functions independently or without supervision'.[11] However, studies examining the relationship between supervision and autonomy demonstrate conflicting evidence about the relationship between supervision and autonomy.[11] One set of studies found that increased faculty supervision of an inpatient night float rotation improved the educational quality of the rotation, with no difference in residents' autonomy.[23,24] By contrast, other studies indicate that rotations with increased supervision limit the amount of intern input into decision making and limit interns' and residents' sense of autonomy.[25,26] These conflicting studies suggest that there is not a simple inverse relationship between supervision and autonomy.

There may be several reasons for the complexity of this relationship. First, examining the literature on supervision, not all supervision is created equal—there are many models for the type and amount of supervision provided. Residents describe a wide range of faculty supervision practices, from 'micro-manager'—dictating the plan to residents and allowing few autonomous decisions—to the 'absentee' attending physician who distances themself from the residents and allows exclusive decision-making power.[27] Within that spectrum, types of supervision can be characterised into 'routine oversight' (preplanned monitoring of trainees' clinical work), 'responsive oversight' (engagement triggered by clinical concerns), 'back-stage oversight' (oversight of which the trainee is not directly aware) or 'direct patient care', where the supervisor takes over the care of the patient.[28] Supervision is dynamic, shifting between 'hands-on' and 'hands-off' strategies to suit specific contexts, and supervision can cover a range of oversight modes that can vary across supervisors and clinical settings.[29]

Second, within models of supervision, there is room for autonomy. For example, in one study, residents identified allowing for autonomy and stimulating independent learning as features of quality supervision.[30] Allowing residents to make meaningful clinical decisions within the structure and support of supervision supported residents' feelings of autonomy.[8] Key components of autonomy-supportive supervision included allowing residents to make decisions for patient care, feeling responsible for the care of patients, engaging in patient care as a collaborator and moving from direct supervision to indirect supervision.[12] In addition, residents desire for more autonomy does not always align with a desire for independence from supervision. In fact, residents often feel an undue pressure during their clinical training to act independently and be 'self-sufficient', a pressure that arises from implicit messaging that acting independently is part of the identity of a physician.[31] Autonomy can exist within models of supervision, pointing away from a simple inverse relationship.

In summary, the relationship between supervision and autonomy is complex, particularly when related to trainee development in the clinical learning environment. Fostering learner autonomy may not be as simple as tailoring the quantity of supervision to the level of trainee competence. While the terms autonomy, independence and decreased supervision are used interchangeably in competency frameworks and medical education literature, we suggest these conceptual entanglements might have unintended consequences for learners' development. Within the competency frameworks and medical education literature, autonomy has been used in two distinct ways. First, autonomy is used synonymously with independence and is conceptualised as a judgement of a trainees' performance, with level of supervision used as an indicator (or metric). Second, autonomy can be conceptualised as a source of motivation that drives trainees to learn and gives them opportunities to develop their identity as a physician. In this view, autonomy is not simply the inverse of supervision. This second perspective offers a psychological view of autonomy, which we consider for the remainder of this article in hopes of elevating its prominence in medical education.

TABLE 1 Main tenets of self-determination theory[32,33]

Humans are growth-oriented and naturally inclined to develop, internalise and integrate psychological elements to build an integrated and unified sense of the self. This natural developmental tendency can be stimulated or hampered by internal and external forces.
There are three innate psychological needs that are important in facilitating growth and integration—*competence*, *autonomy* and *relatedness* to others.
Autonomy is defined as an internal perceived locus of causality; providing choice and opportunities for self-direction can allow people a greater feeling of autonomy.
Human motivation drives human behaviour, can be derived internally or from external pressures and is present on a scale from amotivation, extrinsic motivation and intrinsic motivation.
Intrinsic motivation, which is free from external control, is linked to increased interest, excitement and confidence, which enhances performance, persistence and creativity.
Intrinsic motivation requires supportive conditions to sustain— namely competence and autonomy; events that promote feelings of competence can enhance intrinsic motivation.
There are many social contexts where our behaviour is driven by extrinsic motivation; there can be various levels of relative autonomy within extrinsic motivation, which higher levels of autonomy leading to identification (sincere understanding of a rule made by others) and integration (connecting rules to personal norms and values), leading to self-determination.
Integration occurs 'when identified regulations are fully assimilated to the self, which means they have been evaluated and brought into congruence with one's other values and needs'.
Relatedness, the need to feel belongingness and connectedness with others, is centrally important to internalisation.

3 | AUTONOMY AND SELF-DETERMINATION THEORY

Self-determination theory (SDT) is a theory of human motivation and personal development that can provide a framework for understanding the relationship between autonomy and supervision, and their association with trainee engagement in the development process.[1,32,33] According to SDT, at the foundation of human motivation and development are three innate psychological needs—competence, relatedness and autonomy.[32,33] Motivation is supported and hindered by environmental factors in as much as they support or hinder those basic psychological needs.[32] Within SDT, autonomy is defined as the quality of behaving of one's own volition and will, in accord with one's inner self.[1,32] As such, one driver of authentic motivation for behavioural regulation is a feeling of autonomy or control created by contextual support.[32] Several summaries of SDT are available[32,33]; and we outline the main tenets of SDT in Table 1.

When considering autonomy and development, SDT addresses issues of motivation (from amotivation to extrinsic motivation to intrinsic motivation), styles of regulation (from external to internal regulation) and perceived locus of causality (from external to internal).[32] SDT describes an overarching continuum of behavioural control from non-self-determined to completely self-determined,

with associated motivation, regulatory styles and perceived locus of causality (Figure 1).[32] Since little of what learners do within medical education is strictly internally motivated, understanding this continuum provides insight into how provision of learner choice, even within supervision and extrinsic motivation, can lead to an internal locus of control and integration of the rules and norms of the profession.[32] Within residency training, competency frameworks provide the rules, values and norms for the profession to learners in the form of competencies. Medical educators hope that these rules, values and norms become integrated into the professional identity of the trainee. SDT illuminates how supporting a trainees' needs for competence, relatedness and autonomy can lead to identity formation through the internalisation of these rules, values and norms to develop an integrated regulation of professional behaviour.[32] The key to the application of SDT to medical education takes root in thinking about the contextual factors that foster a sense of autonomy and promote the internalisation and integration of the standards of professionalism into an integrated identity. Within the context of supervision, the provision of choice, acknowledgement of feelings and opportunities for self-direction all serve to enhance feelings of autonomy.[32] In this way, SDT supports the conceptualisation of autonomy within supervision.

4 | APPLICATION OF SDT AND AUTONOMY TO MEDICAL EDUCATION

Conceptualising autonomy through the lens of SDT provides an avenue for education interventions and future research on supervision and autonomy. Defining autonomy as an internal perceived locus of causality separates autonomy from the structural issues of independence, decreased supervision and increased responsibility granted to learners as they progress through medical education. We will discuss autonomy support, the relationship between autonomy support and coaching in medical education, and implications for future research.

4.1 | Autonomy support within supervision structures

We draw on the concept of autonomy support to apply SDT to supervision in medical education. Autonomy support is an interpersonal orientation to education where educators provide learners with choices, information to make those choices, meaningful rationales for suggested actions, acknowledgement of learners' feelings and encouragement to choose and to persist.[1] Within medical education, autonomous motivation has been associated with better learning effort and strategy, better academic performance and less exhaustion than controlled motivation (ie motivation from external pressures or rewards).[34] Autonomy support in the health professions, including teacher support of learner autonomy, generates autonomous motivation and encourages the development of self-regulation.[35,36] Viewing autonomy as more than independence from supervision, educators can better provide autonomy-supportive clinical supervision and teaching. Giving learners choices and supporting those choices links faculty to the process of trainee development. This leads to a key question for resident PIF—how can supervisors provide opportunities for choice and legitimate decision making in the clinical learning environment while still abiding by supervisory requirments?[8,34] Providing autonomy support in the clinical environment is multi-faceted. Examples include exploring a learner's goals and needs, engaging learners in ongoing discussion, encouraging greater responsibility for learning, providing guidance, presenting optimal challenges, offering effective feedback, providing optimal support and ultimately demonstrating interest and investment in learners growth and development.[37] These examples of autonomy support are not novel, and they hearken back to mentoring models of encouraging learner growth through providing optimal challenge and support.[38] When supervisors provide high challenge with no support, this may lead to learner retreat or even burnout. On the other hand, when supervisors provide high support with no challenge, this can lead to confirmation without learner growth.[38] Providing autonomy support entails optimising both challenge and support to facilitate the needs of competence, relatedness and autonomy.

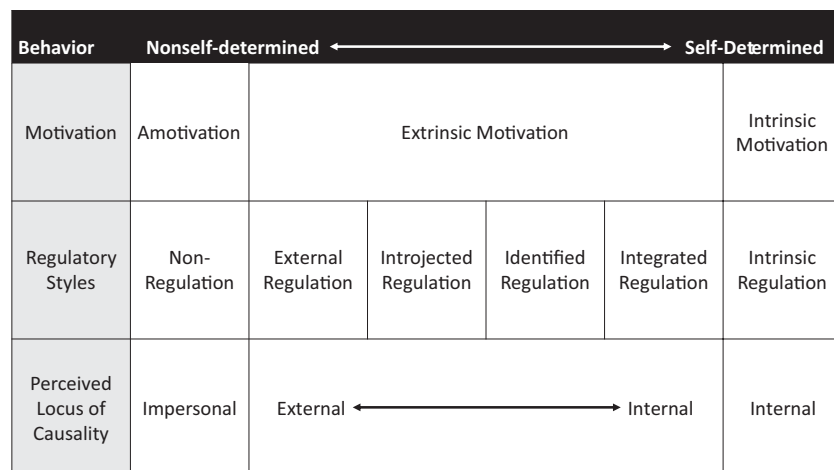| Behavior	Nonself-determined ⟷ Self-Determined				
Motivation	Amotivation	Extrinsic Motivation			Intrinsic Motivation
Regulatory Styles	Non-Regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
Perceived Locus of Causality	Impersonal	External ⟷ Internal			Internal

FIGURE 1   The self-determination continuum showing the relationship between behaviour, motivation, regulatory styles and perceived locus of causality[32]

Taking the application of autonomy support to supervision a step further, we can visualise how autonomy support can inform different types of supervision. Going back to our previous discussion of types of supervision, residents identified a spectrum of supervision from 'micro-manager' to 'absentee' attending.[27] Neither of these extremes are autonomy-supportive. The micro-manager does not provide resident choice, while the absentee attending provides independence with no support for choice over medical decision making. We can overlay the presence or absence of autonomy support on this spectrum of supervision from 'hands on' to 'hands off' to augment our understanding of supervision.[29] This demonstrates how a 'hands-on' approach with appropriate autonomy support can lead to a coaching relationship, while a 'hands-off' approach to autonomy support can be seen in the interaction of colleagues (Figure 2). A great example of autonomy-supportive, hands-on supervision is a faculty member who assesses learners' needs, challenges learners appropriately, pushes learners to make decisions and probes their reasoning, and asks permission to step in and role model aspects of clinical care.[39] These strategies help to differentiate autonomy-supportive, hands-on supervision from micromanaging in the clinical training environment.

4.2 | Autonomy support and coaching in medical education

One place we implicitly see the application autonomy support to supervision in the medical education literature is the current discussions on feedback and coaching. Using SDT as a lens, the provision of timely and constructive feedback is crucial to supporting feelings of competence in medical education,[35] and when linked to autonomy support can promote higher forms of self-regulation.[36] While assessment *for* learning and formative feedback are goals of CBME,[40] there remains a disconnect between assessment and feedback, where learner perceptions of evaluation may hinder learner development through the provision of effective feedback.[41] To address these challenges, there is a growing body of literature in medical education supporting a collaborative model of feedback, where the supervisor-as-teacher and learner are engaged in seeking, setting goals for,

receiving and integrating feedback into practice.[42-47] Yet, there remain significant challenges to implementing high-quality feedback and engaging teacher and learner in feedback conversations.[48] Greater attention to relationship development and engagement, with faculty members who are involved and invested in building relationships with learners, hold promise for improving the quality of feedback conversations.[47,48] The concept of feedback conversations has led to the introduction of coaching as a specific form of collaborative relationship to promote high-quality, formative feedback conversations between teacher and learner.[49-55] While not a formal part of CBME, coaching is gaining traction as a means to support developing competence in learners, and the Royal College of Physicians and Surgeons of Canada has even developed a model of coaching to complement the CanMEDS roles.[49] A conceptual framework for coaching has been derived from work with clinical coaches[50] and models of coaching have been developed specifically to support relationship-building and facilitate feedback conversations.[51-53] When we examine the conceptualisation of coaching within medical education, we see significant overlap with 'autonomy support' derived from SDT (Table 2). The conceptualisation of autonomy support as an 'educational partnership' unifies the concepts of coaching and feedback conversations in medical education.[1] Although there remains debate about the feasibility of integrating coaching within CBME to promote the development of competence and the formation of an integrated professional identity,[54,55] applying SDT concepts to coaching can provide additional credence to coaching in the clinical learning environment to support professional identity formation.

Circling back to physician development, we see the role of autonomy support in medical education as supporting 'integration', which occurs when 'identified regulations are fully assimilated to the self, which means they have been evaluated and brought into congruence with one's other values and needs'.[32] This process of integration, supported by autonomy, echoes the stated goal of PIF in medical education—the incorporation of the values and attitudes of the professional into the identity of the aspiring physician.[56] PIF in medical education is a socialisation process that is influenced by mentors and experiences and moderated by reflection.[7] Engaging residents by providing real responsibility and supporting them to make real decisions for patient care increased residents' autonomy and engagement in patient care, supporting identity formation around the values of responsibility and ownership for patient care.[8] Coaching offers an ideal setting to foster professional identity formation in medical education.[54] Aligning coaching models with SDT principles can inform relationship-building within clinical supervision, where faculty supervisors provide autonomy support for learners and facilitate the integration of core competencies into a holistic view of professional identity formation.

In summary, expanding autonomy beyond traditional notions of independence and supervision to include a motivational and developmental conceptualisation of autonomy provides a lens to examine the nuanced relationship between supervisor and trainee. While the quantity of supervision does play a role in learner autonomy,
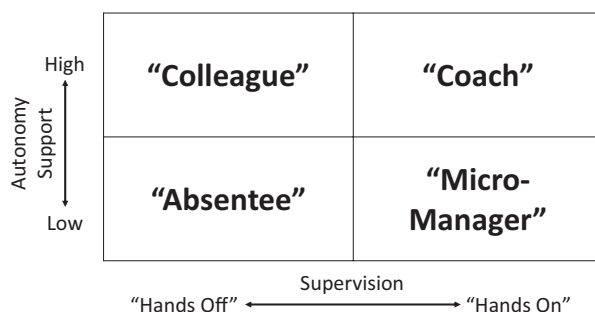
FIGURE 2 Framework for conceptualising autonomy support within the continuum of supervision from 'hands on' to 'hands off'

TABLE 2 Comparison of autonomy support and coaching in medical education

Autonomy support[1,32]	Coaching[50,51]
'providing choices about how to behave, the information necessary to make wise choices, meaningful rationales for suggested behaviours, acknowledgement of feels about behavioural options and encouragement to choose and to persist'.	Mutual engagement, with a shared orientation towards growth and development; the intended purpose of coaching is to unlock human potential.
'requires teachers to hold meaningful dialogues with students, to listen as well as to provide factual information and advice, and to suspend judgement while soliciting the opinions and concerns of students'.	Ongoing reflection involving both learners and coaches; coaches instil habits of reflection and engage in self-reflection on their role in the development of learner.
'may hold high standards, set limits, make recommendations and give honest feedback'.	An embrace of failure as a catalyst for learning, which requires a level of comfort with vulnerability.
'feedback in a manner that provides choice, acknowledges feelings and helps students find their own answers and solutions'.	Building rapport and relationship, exploring reactions to feedback, exploring the content of feedback and coaching for performance change, where the learner develops realistic goals and an accompanying action plan to work towards the goals.

supervisors can provide autonomy support to trainees through models of supervision like coaching and present opportunities for integration of the norms and values of the profession throughout training. Providing autonomy support moves supervisors from the role of gatekeeper of increasing independence and decreased supervision, to the role of guide for trainees through the developmental process.

4.3 | Autonomy and supervision in medical education research

Conceptualising autonomy using SDT offers several possible research questions. First, what supervisor behaviours lead to trainees' perceptions of autonomy? This moves research away from seeking associations between simplified notions of supervision and autonomy to exploring the complexity of these concepts. Second, how do training programs integrate autonomy support into clinical teaching? The affective domain, including learner motivation, is often overlooked in curriculum development within medical education.[57] Researchers need to continue to examine the structure of clinical training to understand how training programmes can integrate models of autonomy support, like coaching, into clinical training. Lastly, how do we train faculty to be more autonomy-supportive? More research is needed on faculty development for autonomy-supportive supervision in the clinical learning environment. Research on the importance and integration of autonomy support within clinical teaching should be studied in diverse settings, across learner trajectories and across specialties and institutions, to provide a broad understanding of the role of autonomy support in medical education.[1]

5 | CONCLUSIONS

Autonomy is critical for the growth and development of trainees in the clinical environment. To better understand the role of autonomy in the developing physician, educators and researchers need to expand their thinking about the relationship between supervision and autonomy, from a purely inverse relationship to one that recognises ways of providing 'supervision' that can give learners more or less autonomy and thereby affect their motivation to learn and grow. SDT classifies autonomy as a universal psychological need and highlights the importance of supporting learner autonomy to enhance motivation and facilitate the internalisation of the norms and values of the profession into an integrated regulation of behaviour. As the medical education field continues to develop, SDT can provide a framework for educators and researchers to understand the role of autonomy support in the areas of feedback and coaching, helping to move the field forward as it seeks to fulfil the promises of CBME for learner-centred education and professional identity formation. Providing autonomy support in connection with appropriate quantity and quality of supervision will facilitate the development of learners into a physician with a well-developed professional identity and ready for the interdependent practice of medicine.

AUTHOR CONTRIBUTIONS
Adam P. Sawatsky made substantial contributions to the conception or design of the work, drafting the work, final approval of the version to be published, and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Bridget C. O'Brien made substantial contributions to the conception or design of the work, revising it critically for important intellectual content, final approval of the version to be published, and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Frederic W. Haffery made substantial contributions to the conception or design of the work, revising it critically for important intellectual content,

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