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SEENING THE BIG PICTURE

A systemic perspective on motivation,
and its implications for social and
psychological research

Patricia L. Hardré

Teaching and learning, and motivation and achievement are integrated in a complex dynamic (Dai and Sternberg 2004). To fully understand how teachers and learners are motivated, research on this dynamic must consider these complex factors together, in their authentic nature and contexts (Hardré 2007). It also needs to take into account features of the context and culture, both those within educational systems and those which infringe authentically from outside.

The international educational community is demonstrating an increasing awareness of the powerful implications of social psychology for educational research and instruction at all levels and for all disciplines (e.g. Dai and Sternberg 2004; Smith and Conrey 2009). We recognize that our learning environments are complex and dynamic, not always traditional classrooms. They include myriad physical and virtual spaces, such as laboratories, libraries, clinics, garages, art studios, homes, dorm rooms, and boardrooms. We have also come to recognize that learning environments are not discrete, but overlapping, integrated, and dynamically connected (Hardré et al. 2012, 2013). The whole field will benefit if ways of conceptualizing educational research on learning adapt to address changes in education itself.

Much of educational research remains oversimplified, framed in narrowly defined, artificially bounded ways; built on single-theory, discrete-outcome foundations (e.g., goal theory, self-determination theory, social cognitive theory). In such studies, a few specific factors or variables are identified and separated out from their authentic context, tested or correlated, and mapped to broad claims about their central importance to the success and future of motivation and learning. The characteristics and constructs featured in these studies clearly present important elements of the complex motivational dynamic; however, too many of these studies leave findings artificially separate from the larger systemic whole. This separation of elements from complex systemic and organizational dynamics, temporarily, to examine them in detail is consistent with the centuries-long standards of scientific research, to which educational and social sciences research are often held. However, some of this single-theory and narrowly defined research has neglected to reintegrate those elements into their authentic dynamic to complete the process of developing understanding. A systemic approach to educational and motivational research offers promise to support such reintegration, but to be used, it must first be understood.
What is ‘systemic’ research?

Synthesizing definitions from several dictionaries, the term ‘systemic’ used alone means: reflecting, pertaining to, or affecting the larger entity or group to which it belongs. That entity or group can be biological, social, educational, professional, economic, political, or some combination. However, the term ‘systemic’ is used frequently, and sometimes loosely, across disciplines and fields of practice in scholarship and education. To investigate and capture a synthesis of how ‘systemic’ approaches have been used, and currently are being used, in educational and motivational research, this author conducted systematic library and internet searches linking the terms (‘systemic’ + ‘research’ + ‘education’).

That library search produced thousands of instances referring to educational research as systemic, and the internet search produced millions of instances. There is not space in this chapter to detail all of these documents and their nuanced differences; however, following is a brief synthesis of their convergent and divergent patterns. In the vast majority of these cases, ‘systemic’ was linked to reform, and to the use of large bodies of research findings to enact change in educational institutions and systems. Some documents reported original research findings and the authors supplied their own applications or extensions as ‘systemic implications.’ In other instances, the documents were reviews or syntheses of research supporting development of a ‘systemic research agenda’ focused on building bodies of inquiry to fill existing gaps for educational practice or to address critical problems for a particular discipline or profession. In only a very small percentage of these articles and documents, ‘systemic’ referred to the design of a study or body of research, and the general patterns among these are detailed in the following paragraphs.

Articles using ‘systemic’ approaches tended to be more prevalent in specific disciplines, such as educational policy and leadership (e.g. Fowler and Walberg 1991), and health professions such as family therapy (e.g. Oka and Whiting 2013). Other fields featuring and advocating for systemic research in education included applied professions such as agriculture (e.g. Alroe and Kristensen 2002) and distance learning (e.g. Passi and Mishra 2004). Action research, applied research conducted by teachers to address teaching needs, was frequently termed ‘systemic’ based on its link to professional application (e.g. Stones 1986). Others used the term to refer to explicitly linked research agendas facilitated through interdisciplinary and professional networks (e.g. Hubert et al. 2012). Rural education research has historically integrated contextual elements systemically, based on recognition of the authentic embeddedness of rural schools within their communities (e.g. Herzog and Pittman 1995; Quaglia and Cobb 1996) (though not all of these studies used the term ‘systemic’).

A tiny subset of these documents (less than 1 percent) conceptualized ‘systemic research’ as a specialized type of research study design, and even these presented a huge spectrum of variations. One often-cited article used ‘systemic’ and ‘analytic’ as terms to describe complementary approaches to research, as an alternative conceptualization to the traditional data-type classifications of ‘quantitative’ and ‘qualitative’ research (Salomon 1991). This conceptualization made the most profound published break from traditional categories to signal ‘systemic’ as a unique direction in research design. Other researchers readily adopted the new terms, equating ‘systemic’ with applied qualitative research of education in situ (Corno 1995), essentially fusing the distinction of applied research from other professional fields with the qualitative framework and elements of classroom action research.

While some theorists have aligned systemic research with particular belief systems or compared it to existing methodological types, it may be seen as a distinct, fluid, and context-responsive method of its own, a method that may bridge and overlap others. It is this conceptualization of ‘systemic research’ that is used to frame this chapter. While it may take the forms and include the strategic approaches of a number of familiar research designs, systemic research is an adaptive approach to educational inquiry, distinguished by its attention to multilevel and multifaceted elements of all relevant contexts of the people and activities under study.
Over the past two decades, education has trended toward greater scholarly acceptance of a plethora of new research methods outside of traditional epistemological and methodological frameworks. Based on Salomon's systemic–analytic departure from qualitative–quantitative distinctions, a number of theorists have found systemic research, with its attention to multilevel and embedded elements, a natural fit to theories such as those asserting the implicit influence of underlying beliefs on research strategies and outcomes (e.g. Schommer-Aikins 2004).

The historic nature of research use for educational change and reform as the collection of findings from many discrete independent research studies is laudable. However, making research useful requires reformers to link together many vastly different studies, any subset of which were conducted in divergent participant groups and contexts, or experimentally controlled so they became divorced from context. Unless studies are part of an intentionally linked and methodologically aligned research agenda, these studies may have used different instruments for measurement, as well as different analysis methods and procedural protocols. Educational research that is truly systemic supplies and accounts for its context, so that accurate linkages can be made authentically from relevant information. Systemic research that meets these criteria of methodological alignment, consistent instrumentation, and accounting for context, can indeed help to bridge the research-to-practice gap and inform the next generation of research.

**Operationalizing systemic research**

The systemic perspective accounts for the complexity of individuals and groups interacting within an environment (Maehr 1989). It arises from an understanding of educational environments as intellectually, socially and emotionally interactive spaces (Maehr and Midgley 1996). Factors in systems are interdependently connected to each other, and embedded within larger systems, so that change in one factor necessarily results in change in other factors (Salomon 1991). Learning and development are the unique products of these dynamically interactive, embedded elements which form a unique integrated whole. This conceptualization of educational research across institutions and learning environments is similar to Bronfenbrenner's (1979) conceptualization of ecological systems applied to child development, and which other scholars have applied to social issues and human behaviors (e.g. Woodside et al. 2006). However, such an approach has not consistently and systematically been applied to motivational research in education, and to the interactions among natural and design characteristics of learning environments, broadly defined.

Learning environments in the twenty-first century are diverse and complex; however, to simplify illustration here, consider, for example, a traditional school learning environment, whether for children, college students or adult trainees. Schools and classrooms are local, interpersonal, social and academic microsystems which exist inside school districts or agencies, communities, and local and national political entities. All of these layers of systems influence the work that schools do, from context, methods, and curriculum, to standards and outcomes assessment. Students are also influenced from outside by peer groups, families and cultures-of-origin, and bring to school these influences on their motivation, learning and development. Similarly, in college, adult, vocational, continuing education, training, and development opportunities are created in response to needs or changes in business and professional practice, and to industrial and technological advances, all of which constitute layers in their systemic frameworks for inquiry. In both examples, and across all levels of education, these various and sometimes conflicting systems create interactions and send messages that influence motivation, learning, and development, for both teachers and learners. Figure 2.1 shows this conceptual relationship, though simplified for depicting those complex influences.
This simple concept graphic needs to be elaborated with all the students in a class, all of the classes in a school, all of the schools in a district, all the districts in a state or nation. Then add the influences of nations on one another; changes in district and government administration and leadership; cultural values, economics and job markets; and digital tools and virtual learning environments, and it begins to approach an authentic mapping of systemic educational influences. Systemic research takes key components of this dynamic into account, informed by theory and existing research precedent, using the broad perspective of systemic dynamics.

### Nature of motivation

Human motivation is complex, internal, and interactive. It is also highly contextualized and place-based; that is, people have different motivations in some contexts than in others (different in traditional classrooms versus digital environments; different in clinical versus laboratory settings; Anderman and Young 1994; Lee and Tsai 2005). Motivation is highly task-based: people have different motivations for simple procedures versus complex problem solving, for tasks they see as easy versus difficult, and for routine versus novel tasks (Beck 2004). It is also very socially sensitive: people respond to feedback differently in private versus in groups; motivation and engagement may be different for written versus verbal communication and performance, and in competitive versus cooperative group situations (Dweck, 1996). Learners respond motivationally to role models they have, examples they see, and social pressures they face (Hardré et al. 2012). This means that learners who seem highly motivated in one setting or task may need support for another, and that research conclusions about individuals and groups will vary when context and task parameters change.

![Figure 2.1 School-within-system culture concept model.](image-url)
How motivation supports learning

Motivation is essential to learning, as demonstrated by research in both behavioral-affective and cognitive-developmental research. Motivation for learning drives choices related to what is being learned: choices to use and apply it, to transfer it to address daily needs, to frame career goals, to make profound life changes (Linnenbrink and Pintrich 2004). Behaviorally and affectively, motivation to learn causes students to pay attention, so they engage with information, and then to engage in practice activities, so they develop skills accurately (Deci and Ryan 2000). It promotes investment of effort to learn and master skills, tenacity, and resilience to overcome challenges, and even initial failure, to achieve eventual success (Bandura 1997). Strong, productive motivation supports learning skills well enough to transfer to authentic practice and retain them over time (Latham 2007). Motivation energizes the willingness to exercise creativity, put forth effort and initiative, take risks, and innovate, resulting in adaptive application of learned skills (Hardré and Siddique 2013). From the cognitive-developmental perspective, motivation helps learners to attend to new knowledge and then activate and link prior knowledge, developing complex schema for later retrieval (Hardré and Kollmann 2013). As basic knowledge forms the foundation for more complex types of knowledge, motivation supports learning and integration that progressively build toward mastery, so learners can develop rich, adaptive skills and problem solve rather than just doing rote tasks (Beck 2004). This is the power of motivated learning: it enables learners to take and use what they are given, process it actively, use it effectively, and transfer it authentically (Dai and Sternberg 2004). Motivation influences how people process information and develop skills now, as well as how they position themselves for future learning and life choices (Dweck et al. 2004).

A systemic perspective on motivation

Motivation for learning and development is personal and internal, yet embedded in a complex ‘social fabric’ (Weiner 1990: 621) of interpersonal, organizational, and cultural elements. The classroom motivational environment is a function of its dominant attitudes and values, such as the valuing (or devaluing) of outcome goals and relevant supports, such as aptitude, effort, achievement, creativity, challenge, risk-taking, and various post-school career options (Hardré 2008). Students’ motivation results from interactions among their psychological needs and preferences (Pietsch et al. 2003); perceptions of the content and skills being taught (Pintrich 2003); self-perceptions of competence, self-efficacy, ability, and probable success (Ozer and Bandura 1990; Schoenfelder 2006); value for and investment in learning (Hardré and Reeve 2003); and how learning links to their future goals and aspirations (Anderman and Young 1994; Liem et al. 2008). Students’ academic motivation depends in part on the nature and quality of the school’s cultural and social contexts, including factors such as role modeling, autonomy support, competence information, encouragement to promote efficacy, error and constructive feedback as learning supports, task relevance and value messages (Hardré 2011; Hardré, Chen et al. 2006; Salili et al. 2001; Smith and Conrey 2009).

Motivational messages are communicated explicitly and implicitly, intentionally and unintentionally, in daily class and school-based interactions (Dweck 1996; Ryan and Powelson 1991). Teachers seek to motivate students, individually and in groups, based on their beliefs about learning and motivation, and about the subjects and students they teach (Hardré 2008; Hardré and Sullivan 2009). Motivating also has reciprocal effects, as teachers who see students motivated tend to persist (Linnenbrink and Pintrich 2002; Radel et al. 2010). Teachers’ efforts to support learners’ motivation are complicated by implicit tensions between long-term benefits of intrinsic motivation (e.g. personal growth, internal aspirations, passion to learn) and short-term management and productivity benefits
from extrinsic motivation (e.g. compliance with rules, current grades) (Deci and Ryan 2000; Druckman and Bjork 1994). They are also influenced by administrative and organizational policy and philosophy (Battistich et al. 1995; D’Amico et al. 1996; Hardré et al. 2013).

Schools are social and cultural systems, a composite of shared and divergent beliefs and expectations of community members (Ley et al. 1996). Motivational beliefs and strategies infuse the school systemic so that teachers and staff tend to adopt community-sanctioned motivational beliefs and practices (Capper, 1993; Hardré, Huang et al. 2006). School policy and practice drive motivational opportunities in schools, influencing students’ goals and performance standards, choices, control and self-determination, aspirations and possible futures, and definitions and expectations of success (Maehr and Midgley 1996; Wang and Guthrie 2004), including the role of standardized tests and grades (Duke 2004). As people function within a system, over time they more fully adopt its patterns and practices – for better or worse (Keyton 2011; Kohn 1993). Student motivation and achievement influence school performance overall (Duke 2004). The whole system is embedded in a complex of larger entities and communities, creating interactions among diverse factors, difficult to sort but critical to examine (Weiner 1990). Systemic motivational research acknowledges the complexity of the teaching–learning interaction and its unique, dynamic, multilevel influences, and requires the study of interdependent relationships and patterns of change.

**Approaching motivational research systemically**

Though researchers tend to agree that education is indeed complex, too often in practice educational research treats individuals, classrooms and schools as overly simplistic, ignoring complex systemic relationships among factors, as if people existed in sterile environments without myriad, multilevel influences. Historically, few researchers and practitioner-scholars have fully acknowledged and investigated systemic influences. Researchers who recognize and acknowledge the value and fit of a systemic approach to motivational research in education may ask, ‘How can this be achieved?’

A systemic approach to research requires acknowledging the nature and effects of those influences that surround the individuals and systems under study. It does not require that the design and data collection include all of these influences, but researchers need to consider the relevant systemic factors, and evaluate their direct and indirect (often nuanced) effects, on the variables or phenomena under study, rather than ignoring them. Systemic data analysis should include the comparative examination, synthesis, and convergence of multisource data, reflecting various perspectives of stakeholders, so its results reflect the diversity of perspectives within the system (Hardré 2007).

Research using the ideal of experimental controls, producing certainty of outcomes and apparent objectivity, artificializes the authentic nature of motivation and learning. Too often, researchers who extract constructs and factors for experimental study never reintegrate them into the authentic context to derive meaningfulness from their findings. For an area of research with the complexity and multilevel influences of motivation, systemic research is theoretically and intuitively appropriate. Considering educational motivation systemically and fluidly integrates elements that include its various time-based components (past experiences, present interactions and experiences, future expectations and aspirations, present and future goals); its multiple levels of value-based influences (political, organizational, institutional, local, culture, individual); and its various social elements (past and present role models, teachers and mentors, parents and authority figures, family and culture-of-origin, peers and working teams, aspirant identities and professional goals).


**Examples of systemic considerations**

Systemic motivational research cannot be absolutely comprehensive, as including all relevant influences on any learner’s motivation would be prohibitive in scope for most researchers’ agendas. However, it needs to include more than the simplest, most sterile map of factors, and demonstrate that the researchers have taken into account relevant influences of the larger educational system or learning environment on the motivational dynamic. To provide a sense of the balance needed in systemic motivational research, below are some examples of how studies in various groups and contexts can gain systemic authenticity:

- In a study setting out to understand the overall academic motivation of high-school students, who may change teachers four to eight times a day, systemic inclusion of whole-school policy and practice is crucial.
- In a school or district that is under pressure to raise test scores, with implications for teacher and administrator employment, a study of curriculum change or instructional flexibility would need to take that pressure into account, because it is likely to influence decisions beyond the direct effects of teacher style and autonomous choice.
- A study of college and university faculty productivity (such as grants, publications and conference presentations) should take into account available supports (financial, staff, graduate assistants), conflicting demands on faculty time and resources (teaching, service), and performance assessment, all of which influence goals and constrain choices.
- Research on the motivation of employees in industrial jobs should take into account not just their individual differences and immediate supervisors, but also the broader context of the company’s organizational structure, values, and culture.
- Investigations of college motivation and retention in applied professional fields (such as engineering, architecture, and health sciences) should include how well students understand the relevance of what they are learning to their eventual career goals and demands.
- Studies of K–12 teachers’ skill development in university-based learning environments assessing transfer-to-practice need to account for social and organizational supports for teachers and students in their schools.
- Studies of motivation in community-based health educational programs (with goals such as reducing youth risk behaviors for HIV-AIDS) will benefit if they include community cultural and social values, and use multilevel data (e.g. from youth, parents, and community leaders).
- Motivation research in rural schools is more contextually authentic when it acknowledges rural schools’ ‘place-based-ness’, linked to motivating values (e.g. family responsibility) and potential constraints on identity development (e.g. social and geographic isolation).
- Balancing inclusion of influential cultural characteristics with community and organizational specifics, East Asian educational studies often include systemic characteristics of family and cultural values on motivation.
- Studies of learning and motivation in digital and distance learning environments should take into account personal and interpersonal motivating characteristics and perceptions (such as access to assistance, technological competence, and the larger user context outside the system itself).

While not all studies that take systemic perspectives use that term to describe their methods, they are distinct from nonsystemic research in that they frame their background, methods, and findings with attention to relevant system characteristics and apparent or plausible influences. Which factors to include and emphasize can be framed based on theory and previous research precedents and findings.
Systemic research may take on any overall design (e.g. experimental, quasi-experimental, descriptive, ethnographic, narrative) and use any combination of data types (e.g. quantitative, qualitative, mixed) and data sources (e.g. surveys, performance observations, interviews, metadata). In identifying systemic research studies in motivation, it is important to underscore that the inclusion of systemic elements needs to be nontrivial; that is, systemic research treats system characteristics as central in the methods and in deriving meaning from the study findings. Hundreds of published articles mention the context of ‘an urban school,’ a ‘research university,’ or a ‘large corporation’ in describing their location or participant group, but these contexts are rarely mentioned again, and their defining characteristics not at all. Systemic research makes context a substantive component of design, analysis, and the development of meaning from data.

Summary, challenges, and future directions

There are critical differences in how the term ‘systemic’ is used across scholarly studies, reviews, reports, and other documents, dividing between systemic study, systemic agenda, and systemic application. The term ‘systemic’ can refer to an individual research study design, to a study series or research agenda, or to an applied synthesis of a body of work. In referring to a single study design, ‘systemic’ indicates design with attention to multilevel, embedded contexts and influential elements, relevant to the research questions and factors under study. It is not merely a term for a subgroup of qualitative methods, but a unique approach that may include multiple data types and will necessarily include multiple data sources. Systemic research for motivation in education offers potential for integrating nuances of system characteristics and factors, to examine their possible influences on measured variables and outcomes. As has been observed by many scholars, examining the constructs that influence learning and development in their authentic contexts holds promise to bridge the research-to-practice gaps and recontextualize what we think we know about why learners and teachers (of all ages and groups) think and behave as they do.

Challenges to systemic research include that it is more complex than traditional approaches. Rigorous and reasoned measurement and analysis design and methods need to match the systemic perspective and frameworks. Researchers need systematic and accepted ways of identifying and validating what systemic factors to include in explicit design of scholarly research studies. International leaders and funding agencies in education have stressed the need and taken up the call for systemic research. Still, it has not been fully engaged and accepted, as the field of educational research has lacked clarity on how systemic approaches apply to the study of traditional, theory-based subspecialties such as motivation.

References

Arranging the big picture: A systemic perspective on motivation


