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Greg G. Wang and Jia Wang
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Toward a Theory of Human Resource Development Learning Participation

GREG G. WANG

James Madison University

JIA WANG

Barry University

This article fills a theoretical gap by identifying an understudied subject area for human resource development (HRD) theory building, learning participation of HRD interventions in organizations. The topic has critical significance in current HRD practices, such as concerns on e-learning dropout rates and HRD measurement and evaluation. First, a comprehensive literature review and analysis are presented to identify the research gap in general adult education research and management or HRD-related literature in learning participation. A conceptual framework of HRD learning participation is then proposed, from cross-sectional and time-series perspectives, to describe the pattern, factors, structure, and their interrelationships in HRD learning participation, with a discussion of model constructs. The conceptual framework is then operationalized with mathematical operations to demonstrate how to empirically test the model. Finally, the applicability of the proposed theory and its implications for future HRD research are elaborated.

Keywords: *learning participation; HRD theory building; dropping out and completion; HRD evaluation*

Employee participation of learning interventions is an important issue for business practice as well as theory building in human resource development (HRD). To be effective and to achieve intended business outcomes, HRD learning interventions depend, first and foremost, on employees' full participation and engagement. However, unlike its counterpart in adult education research, employee participation of HRD interventions has received limited attention among researchers, except for a few empirical studies in management and industry and organization (IO) psychology literature (Hicks & Klimoski, 1987; Maurer & Tarulli, 1994; Noe & Wilk, 1993).

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Currently, there is an urgent need for learning participation research. This need arises from the low participation in and high dropout rates of e-learning, which is a widespread concern throughout business and industries. A recent report cited that only 69% of employees participated in mandatory e-learning programs, and voluntary participation in e-learning was merely 32% (ASTD & The Masie Center, 2001). According to Meister (2002), 70% of corporate learners do not complete scheduled online learning programs in HRD practice. Frankola (2001) claimed a 20% to 50% e-learning dropout rate, referring to it as an “embarrassing secret” in corporate e-learning. It is apparent that technology-mediated modern HRD learning interventions are facing the challenge of attracting participants and keeping them to the completion. This challenge calls for HRD researchers to enhance theory building efforts.

Theory is the best way to deal with new situations in practice (Holton, 2002). Meanwhile, well-developed and adequately tested theories could enhance and provide guidance to field practices. Toward theory building regarding learning participation in HRD field, we must analyze and understand the nature, pattern, and variables that determine individuals' learning participation behavior. Then, effective strategies may be identified to help organizations achieve intended employee performance improvement and contribute to business objectives.

Significance and Purpose

The significance of establishing a theory on learning participation in HRD interventions deserves some further discussion. An HRD learning intervention is an investment activity for organizations (Wang, Dou, & Li, 2002). Participation and completion is a precondition for any such investment to be meaningful, productive, and fruitful. Thus, studying the subject and identifying the influencing factors and their relationships through theory building may provide organizations with important insight into human capital investment. Second, knowing the patterns of learning participation and the factors determining the participation behavior, organizations will be able to develop policies and strategies to effectively encourage, motivate, and support employees' active participation. As a result, the dropout rate may be minimized or prevented. Furthermore, a well-developed learning participation theory may enhance and strengthen the development of measurement and evaluation (M&E) theories and practice in HRD. For M&E of HRD interventions, Kirkpatrick's (1998) four-level evaluation taxonomy or other relevant theories are based on an implicit assumption that learning participation and completion is not an issue. Without employee participation, there would be no outcome subject to M&E.

There have been empirical studies by IO psychologists linking employee participation in voluntary-based development programs with program outcome evaluation (Baldwin, Magjuka, & Loher, 1991; Hicks & Klimoski, 1987; Maurer & Tarulli, 1994). In the HRD field, the relationship between learning participation and learning outcome measurement is also recognized by reflective practitioners. For instance, Spitzer (2004) suggested treating learning participation as Level 0 (the ground level) with regard to the four-level evaluation. It is logical that evaluation and measurement of HRD interventions should consider all those who participate in and complete the interventions, those who are targeted audiences but do not participate, as well as those who participate but do not complete it. All three groups are relevant regarding the investment and potential business outcome of the HRD interventions.

Building on previous research on learning participation in the adult learning arena and other HRD-related fields, this article attempts to develop a learning participation theory for HRD interventions by examining the characteristics of employee participation and the decision-making process. This theory is intended to be applicable for both traditional HRD learning interventions (e.g., classroom settings) and technology-driven platforms (e.g., e-learning). In what follows, a literature review is presented in learning participation and motivation in both general adult education and HRD-related studies. Next, a conceptual framework of learning participation in HRD interventions is constructed, which is then operationalized through quantitative and qualitative approaches describing the factors and their relationships. This is followed by a brief discussion on the applicability of the newly proposed theory in HRD reality. The theory's implications for future HRD research are also discussed.

Review of Literature

This section reviews and analyzes literature in both adult education and HRD-related fields, such as management and IO psychology. The purpose is to establish a ground for building a learning participation theory for HRD interventions.

Research on Adult Learning Participation

Adult learning theory is perceived as a foundation for HRD (Yang, 2004). Hence, it is logical to begin our literature review with research in adult learning participation. Learning participation theories are coherently linked with learning motivational theories because no participation and completion should be expected if participants have no motivation to learn. The the-

ory building process in adult learning appears to reflect and support such an assertion. The inquiry of motivation theory in adult education was first initiated by Houle (1961). Through an interview-based study of adult learners, Houle identified three categories of learning motivation: goal oriented, activity oriented, and learning oriented. This learning motivation typology was further refined by several other researchers including Sheffield (1964), Burgess (1971), Boshier (1971), and Morstein and Smart (1974). Collectively and progressively, Houle's adult learning motivation typology was expanded into six motivators to explain learning participation in adult education. The six motivators are social relationships, external expectations, social welfare, professional advancement, escape and stimulation, and cognitive interest.

Along with the research development in motivational factors of adult learning, a number of participation theories and models emerged, exploring and describing adult participation and involvement in learning activities. Miller (1967) combined Maslow's (1954) motivational needs hierarchy with Lewin's (1947) force-field theory and identified positive and negative forces influencing adult learner's participation based on his or her socioeconomic classes. Taking an individual's motivational perspective, Boshier (1973) proposed a congruence model to explain dropout rates from adult education institutions. The congruence model explored the roles played by social and psychological mediating variables and personal motivation variables in learning persistence and dropout rates. Furthermore, the researcher used data from university continuing-education students to test his hypothesis by defining the incongruence scores as a measure (Boshier, 1973). In the meantime, an expectancy-valence model was proposed by Rubenson (1977) to address both socialization and structural dimensions of adult learners. *Expectancy* was defined as individuals' anticipation of being successful in an educational situation, and *valence* was related to the value a person puts on being successful. In the expectancy-valence model, the decision to participate was affected by a combination of negative and positive forces within the individual and the socioeconomic environment.

The participation theories and models discussed above deal with adult learning in general. There are certain limitations in terms of their applicability in learning participation in HRD interventions. These models were developed for a primary purpose: to assist public policy makers in devising national, local, or community-based adult education programs and policies (Merriam & Caffarella, 1999). In contrast, HRD interventions are organization based and, more often than not, are driven by certain business objectives. Therefore, variables that determine learning participation in the general adult learning arena, such as social structure and socioeconomic status, may not be applicable or relevant to learning participation in HRD interven-

tions. In addition, rapid technological innovation and prevailing Internet access in the workplace have changed the landscape of learning dramatically. Participation and completion or dropping out may be related to and influenced by factors anew or different from those identified earlier in the conventional setting for general adult education.

Some fundamental differences of learning participation between general adult education and HRD interventions deserve further discussion. First, the decision to participate has different origins. In general adult education, the decision to participate is usually internally made by the individuals. Such a decision is often associated with certain personal preferences and life-related or career-related changes or transitions (Henry & Basile, 1994; Miller, 1967). In fact, early adult education researchers used the words *voluntary learning* and *adult learning* interchangeably (Johnstone & Rivera, 1965). As to HRD interventions, learning programs are instigated by organizations to enhance job performance and improve productivity. Consequently, employees are often required or expected to participate in the learning program as part of job performance. In other words, the decision to participate originates externally in organizations. In the case of an employee's voluntary participation in a program in which he or she is not required or expected to participate, the employee needs to obtain an approval by the supervisor, who will ensure that the learning would be beneficiary to the organization's overall business goals.

Second, in participation theories for general adult education, the socioeconomic environment plays a critical role (Rubenson, 1977). But in HRD reality, the impact of socioeconomic factors on learners' participation is perhaps indirect and less crucial. Although the initiation of a learning intervention may be resulted from socioeconomic changes and pressure at the management level, individual employees' completion or dropping out of such an intervention may be influenced in a lesser degree.

Third, the motivation factors that affect the decision of participation may also differ in a general adult education setting and the HRD intervention scenario. For traditional adult learners, motivators or triggering events may be improving one's socioeconomic status or simply a desire for self-enrichment (Miller, 1967). On the other hand, motivational factors of learning as HRD interventions may center around organizations, for example, meeting management's expectations rather than the individual's personal interests.

Last, the investment sources of learning participation are different, which perhaps is another key element affecting the decision of participation and completion of a learning program. General adult education programs are often funded through public sources, such as the federal or local government, or paid out of an individual's own pocket. The HRD-related learning interventions are usually initiated and sponsored by organizations. In the former cases, participation and completion become more of a personal deci-

sion, whereas in the organizational cases, the decision is more likely to be made by management.

HRD-Related Research on Learning Participation

Unlike adult education research that has seen a number of theories and models developed, research on learning participation in HRD interventions is sparse, despite some circumstantial empirical investigations. In fact, the issue of learning participation in HRD interventions did not have much appearance in the literature until the late 1980s.

Our literature search indicates that the first relevant empirical study was conducted by Hicks and Klimoski (1987). Through a field experiment, the study examined the relationship between employees' degree of choices in the form of receiving information or previews (i.e., the marketing materials of training sessions) when selecting a learning program and the learning outcome. Those who perceived themselves as having a high degree of freedom to participate in training reported more favorable posttraining reactions and a clearer sense of achievement than those who perceived little freedom in choices. With a similar experimental design, Baldwin et al. (1991) investigated the effects of trainee choice of training on subsequent motivation and learning. Based on a framework of trainees' choice of participation in the training process, the study emphasized the crucial role of providing choice of participation as a motivation strategy in training contexts. The study also posited perils of participation, meaning that if trainees do not receive what they choose, it would lead to poor motivation and poor learning outcomes more so than if an organization had not provided a choice at all.

Noe and Wilk (1993) went one step further to explore factors influencing employees' participation in learning programs. Such factors include self-efficacy and work environment perceptions on development activities as mediated by learning attitudes and perceptions of development needs. Through an empirical investigation, they observed that motivation to learn was an important attitudinal variable that had a significant and positive influence on different outcomes related to learning activities. They also confirmed that employees' perception of managers and peer support for development activities and the type of working condition affected their participation in learning programs.

Recently, Maurer and Tarulli (1994), through a training program evaluation, examined the relationship between interest and participation in voluntary learning activities and three groups of constructs among nonmanagement employees. The three groups of construct included perceived environment, perceived incentive and outcome, and person variables. The study revealed that individual characteristics, such as job involvement, self-efficacy, beliefs about the need for skill development, and

career insight, accounted for the most variance in learning participation. The authors also noted that organizations' policies and regulations facilitated learning participation.

Taking an interdisciplinary approach, Wang (1997) addressed the subject from a different angle. Using a national database and integrating HRD training practice with institutional economics, Wang made an empirical estimate on the determinants of participation in HRD training interventions in the United States. Similar to other empirical studies, Wang's study involved little theoretical framework of learning participation. More recently, Yang (2004) discussed the role of participation in a holistic theory of knowledge and adult learning. Yet in Yang's theory, participation was treated as one of the nine modes of learning in the adult education domain and had limited relevancy to learning participation in the HRD field in particular.

Clearly, research and theory building on learning participation in HRD interventions have not drawn much attention from HRD researchers. There is an exception though with the work of Maurer (2002), who conceptualized previous empirical studies in learning participation and proposed an employee learning and development orientation (ELDO) model. As the first theoretical synthesis of learning participation related research, Maurer (2002) posited that ELDO is a motivational state that depends on the degree to which learning and development are relevant to the self. *Self* is referred to as "self-schemas or knowledge structure about oneself" (Maurer, 2002, p. 16). Unfortunately, the ELDO model did not touch a key component regarding learning participation: learning process. Instead, it simply assumed that "learning is a product of the motivation" (p. 14).

Two important implications may be drawn from previous studies on learning participation in HRD interventions. First, most studies exhibited important evidence on the relationships between participation and learning outcomes evaluation. This suggests that in-depth HRD research in learning participation may offer an important lens to examine and identify ways to overcome current barriers in HRD M&E research and practice (Wang & Wang, in press). Second, studies on learning participation have identified similar patterns and characteristics of factors influencing the participation behaviors of employees across different organizations, in different industries, of different job functions, as well as on different learning programs. For instance, there are studies covering not-for-profit organizations (Hicks & Klimoski, 1987) and for-profit organizations (Maurer & Tarulli, 1994; Noe & Wilk, 1993). Studied industries include banking, health care, and engineering (Noe & Wilk, 1993). Employee job functions encompassed clerical, technical, sales, and managerial (Maurer & Tarulli, 1994) or even general adult audiences (Baldwin et al., 1991). Results from these broad-based studies provide a wealth of information that may be used as bricks

for building a holistic theory on learning participation in HRD interventions.

In summary, it is evident that learning in general adult education settings differs from learning through HRD interventions in terms of the purpose of the program, the funding source, the driving force for participation decision, and factors influencing the decision. There has been a lack of research on learning participation in HRD interventions. Given the changing business environment and the mounting concerns regarding HRD program participation, completion, and its impact on organization outcome, it is imperative for HRD scholars to explore and develop learning participation theories to facilitate HRD interventions.

It must also be noted that none of the prior studies, general adult learning or learning participation in HRD interventions alike, has considered factors that influence dropout rates. We believe that the issue of dropout rates, or noncompletion, represents the other side of the coin and is as important as the issue of participation. Therefore, learning participation research should deal with both issues. Such research should also examine factors that have been overlooked previously, such as learning styles, learning process support, and instructional design, among other things.

A Conceptual Framework

For any given HRD intervention, two levels of key decisions must be made: (a) whether to participate and by whom and (b) whether to complete it or drop out. The first-level decision is usually made by both management and the individuals on a sequential basis. Even for some programs appearing to be voluntary, they are actually the results of decisions made by organizations in the first place. The management-driven decision is often based on certain business considerations and determined by organizations as represented by employees' direct or indirect supervisors. Once an employee is engaged in the HRD learning intervention, he or she may carry out the learning process to its completion or interrupt the learning process and drop out of the program. This is the second-level decision, which is likely to be made by the individual participants. E-learning dropout cases are usually the results of such decision and are usually carried out by the individuals. The second-level decision involves a rather complex process that may be affected by multidimensional factors at individual and organizational levels. Unlike the first-level decision on participation, the decision of completion or dropping out is dynamic; it may occur at any point throughout the intervention implementation period.

Based on previous empirical studies, learning participation in HRD is conceptualized here as a multidimensional construct (Baldwin et al., 1991)

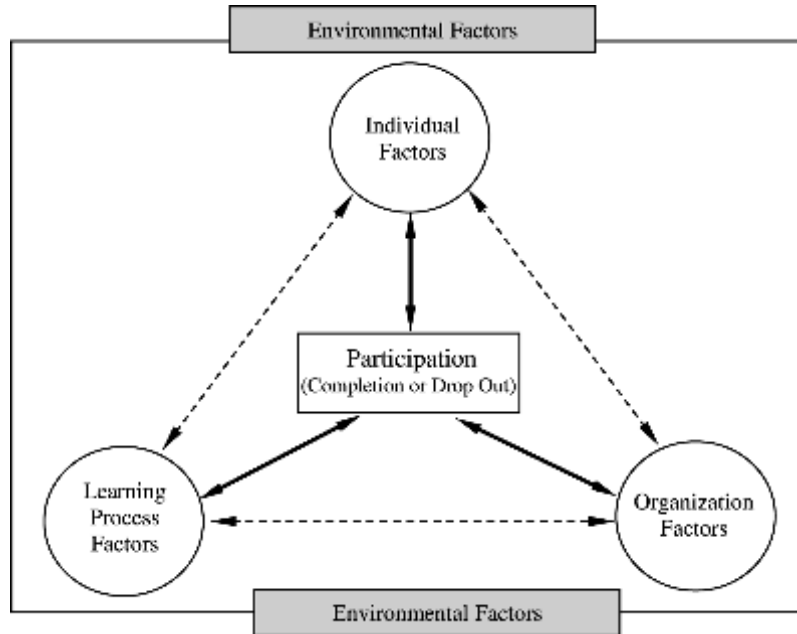


FIGURE 1: A Conceptual Framework for Learning Participation and Dropping Out of Human Resource Development Interventions

that can take a variety of different forms and that can occur at different points during the learning process (Cotton, Vollrath, Froggatt, Lengnick-Hall, & Jenings, 1988). As illustrated in Figure 1, three clusters of variables surround and influence employees' participation in completion or dropping out of HRD learning interventions: individual, learning process, and organization. These three clusters are mediated by environmental factors. Under certain circumstances, environmental factors may become influential (e.g., economic downturn and high unemployment rate in certain segments of the labor market). But such influence only manifests itself indirectly by affecting one or more of the main cluster factors.

Constructs for the Individual Cluster

Drawing from prior empirical and theoretical work, we identify six factors to be included in the individual cluster: motivation, self-efficacy, organization membership, personal characteristics, learning technology orientation, and individual cultural orientation.

Motivation. Motivation is the psychological feature that causes an individual to behave in a certain manner to accomplish certain predefined goals. Previous empirical studies show that employees' motivation is a key determinant of interest and rate of participation in learning programs (Allen, 1999; Farr & Middlebrooks, 1990; Kozlowski & Farr, 1988; Maurer, 1994; Noe & Wilk, 1993). Learning participation related motivation can be further defined as (a) motivation to learn, (b) career insight, and (c) job involvement.

Motivation to learn refers to the desire, attention, and effort required to complete a learning task (Machin & Fogarty, 1997). It is found to be positively related to employees' rate of participation in learning activities (Noe & Wilk, 1993). Career insight is the degree to which a person possesses knowledge regarding his or her career-related strengths and weaknesses, as well as career goals and plans (London, 1983; Maurer, 2002; Maurer & Tarulli, 1994). There have been observations that link career insight with learning participation (Maurer & Tarulli, 1994; Noe & Wilk, 1993). *Job involvement* was defined by Maurer and Tarulli (1994) as the degree to which an employee considers work to be a central life concern. Conceivably, a person with a high degree of job involvement is more likely to participate in and complete job-related learning programs.

Self-efficacy. Self-efficacy refers to employees' belief and confidence in performing a task or addressing a challenge in learning (Bandura, 1977). Empirical studies have identified self-efficacy as an important facilitator of participation in training, learning, and development activities (Maurer, 2002; Maurer & Tarulli, 1994; Noe & Wilk, 1993). An employee will be more likely to participate in and complete a learning program if he or she is confident about the learning outcome.

Organization membership. Organization membership consists of job title, job tenure, and organizational tenure. It has been found to have a significant relation with participation (Kozlowski & Farr, 1988; Kozlowski & Hults, 1987; Wang, 1997). In the case of unionized organizations, union membership has also been found to be a critical factor determining learning participation (Wang, 1997). These variables affect learning participation because of the fact that there is an internal training market under an internal labor market in organizations (Wang & Holton, 2004), and these variables may influence employees' opportunities to participate in learning programs.

Personal characteristics. Personal characteristics, such as age, gender, education background, ethnic group, and, in some cases, even marital status, are identified as significant variables affecting learning participation (Wang, 1997). Many e-learning programs initiated by organizations often take up employees' personal time for participation. In this case, those who are married and who have children may be more likely to drop out than those who are single and who have no children. Also, in today's global economy, multinational orga-

nizations offer various e-learning programs across borders to employees located in different countries. Cultural differences may come into play influencing learning participation and completion or dropping out.

Learning style. Learning style is the composite of preferential or characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment (Keefe, 1979). It also refers to cognitive style, which is intrinsic information-processing patterns that represent a person's typical mode of perceiving, thinking, remembering, and problem solving. Learning styles may not directly influence the initial decision of participation, but are crucial in determining whether a learner can carry through and complete a learning program in the learning process. A recent empirical study attributed learning style mismatch as one of the major factors causing e-learners to drop out (Wang, Foucar-Szocki, Griffin, O'Connor, & Sceifert, 2003).

Perceived learning needs. Perceived learning needs are described by Noe and Wilk (1993) as having two facets: (a) awareness of learning needs and (b) the extent of agreement with the organization's assessment of learning needs. The consistency of the two aspects of perceived learning needs is important. Learners who perceive that the organization's assessment of their learning needs is accurate are more likely to participate in and complete learning interventions.

Perceived benefits. Perceived benefits, as identified by Nordhaug (1989), include three aspects that together increase the participation and completion rate of learning programs: (a) development of learning motivation (e.g., desire to participate in more learning programs and desire to learn), (b) career development (e.g., promotion and more interesting assignments), and (c) psychosocial development (e.g., self-actualization and improved ability to participate in non-work-related organizations). However, the second part of the third benefit may be applicable to only traditional learning programs in a classroom setting. It may even negatively affect the participation and completion of technology-mediated learning programs because e-learning usually takes place in the workplace or at home.

Learning technology orientation. Learning technology orientation refers to the individual's attitude or aptitude toward the Internet and learning technology. It includes individuals' inclination to or curiosity about technical innovations and current level of technical competencies in certain subject areas, such as computer and Internet navigation skills. One cannot expect a technophobia who shuns away from operating a microwave stove to attend and complete a multimedia online learning program. This variable is recognized as a crucial factor influencing the rate of completion or dropping out of technology-based HRD learning programs (Wang et al., 2003).

Individual cultural orientation. Individual cultural orientation addresses the influence of culture on an individual's behavior in terms of learning participation and completion or dropping out. Hofstede (1986) reported that individual cultural orientation affects learning outcomes through learning interactions. DiMaggio (1997) noted that culture influenced individual cognitive processes. Wang, Wang, Fang, and Tuzlocova (2004) further identified different rates of e-learning participation and dropping out in three different countries. All of these studies indicated that individual cultural orientation affects not only learning participation but also completion or dropping out. With increased globalization and diversity, individual cultural orientation needs to be considered in learning participation research. A summary of the constructs for the individual cluster can be found in the first column of Table 1.

Constructs for the Learning Process Cluster

Previous studies on learning participation, regardless of general adult learning or management, IO psychology literature, and empirical or theoretical research, have not considered variables related to the learning process and its potential impact. Factors identified and rationalized in this cluster have been found critical in determining learners' persistence and motivation during the learning process, according to two recent studies by Wang et al. (2003, 2004) on e-learning participation and completion in the United States and the international arena. Therefore, a holistic learning participation theory cannot be established without considering the constructs in the learning process.

Once an employee participates in an HRD learning program, the learning process kicks off, and it becomes critical for the participant to determine whether he or she will complete it or drop out and influence the subsequent learning outcomes. Although some of the factors in the individual cluster, such as motivation and self-efficacy, are still in effect, there would be additional learning-related variables coming into play, further complicating the situation. These additional variables will largely affect second-level decisions: whether to drop out and when. Evidently, factors in the learning process not only determine learning persistence, but they also affect learning outcomes, behavior change, and ultimately business impact, as classified by the four-level evaluation taxonomy (Kirkpatrick, 1998). We posit that variables in the learning process cluster consist of the following: needs assessment, instructional design, delivery mode or platform, technology-based learning environment, and instructor or facilitator. Each of these variables is analyzed below for its effect on the learner's decision of continuous participation, completion, interruption, and dropping out.

Needs assessment is the first step in developing HRD learning interventions (Rothwell & Sredl, 1992), and all subsequent learning interventions

TABLE 1: Learning Participation and Dropout Constructs

<i>Individual Cluster (1)</i>	<i>Learning Process Cluster (2)</i>	<i>Organizational Cluster (3)</i>	<i>Environmental Cluster (4)</i>
<p>Motivation</p> <ul style="list-style-type: none"> • Motivation to learn • Career insight • Job involvement <p>Self-efficacy</p> <p>Organization membership</p> <ul style="list-style-type: none"> • Job position • Job tenure • Organizational tenure • Union membership <p>Personal characteristics</p> <ul style="list-style-type: none"> • Education background • Age • Gender • Ethnic group • Marital status • Learning style <p>Perceived learning needs</p> <ul style="list-style-type: none"> • Awareness of learning needs • Agreement with the organization's assessment of the learning needs <p>Perceived benefits</p> <ul style="list-style-type: none"> • Development of learning motivation • Career development • Psychosocial development <p>Learning technology orientation</p> <p>Individual culture orientation</p>	<p>Needs assessment</p> <p>Learning subject</p> <p>Instructional design</p> <ul style="list-style-type: none"> • Interactability <p>Delivery platforms</p> <ul style="list-style-type: none"> • Traditional format • E-learning <p>Instructor and facilitator</p> <ul style="list-style-type: none"> • Perceived competency • Perceived responsiveness • Perceived dedication • Instructional approach <p>Technology-based learning environment</p> <ul style="list-style-type: none"> • Perceived learning interface design • Perceived usability • Accessing speed • Connectivity • Online page size 	<p>Organization context</p> <ul style="list-style-type: none"> • Philosophy • Learning culture • Organization social support <p>Organization policies and regulations</p> <p>Work Content</p> <ul style="list-style-type: none"> • Job transitions • Task-related characteristics • Obstacles • Technical updating • Type of industry • Occupation requirement 	<p>Economic conditions</p> <p>Uncontrollable disasters</p>

and events stem from it. If learning needs are misidentified, the learners are likely to drop out no matter how motivated they might be.

The quality of instructional design is also an important factor affecting the learning process. Instructional design links science with practice and learning theory with learning content (Reigeluth, 1983) as it prescribes instructional actions to optimize desired learning outcomes. A good-quality design is more likely to attract, inspire, and retain learners in the program until its completion.

Interactivity is a feature of the instructional design that should be considered here. In instructional design, *interactivity* is defined as the ability to provide control, direct attention, and coordinate the communication among the learner, instructor, and content (Driscoll, 2002). Interactivity is equally important in facilitating learning for both traditional and technology-based learning interventions, but it is more critical in determining learner dropout behavior for e-learning because of a lack of face-to-face interactions between learners and instructors. Research has shown that inappropriately designed interactions lead to boredom, overload, and frustration (Berge, 1999), and are therefore likely to contribute to the dropout rate of the learning process, especially for e-learning.

The participation theory proposed in this article aims to explore general participation and completion behavior and influencing factors for all HRD learning programs. The learning delivery platform (i.e., classroom setting, Internet based, or any combinations of the two) is an important factor in determining participation and completion or dropout rates. In recent years, a popular view supported by a number of empirical studies is that there is no significant difference between classroom learning and technology-mediated learning (Russell, 1999). However, the studies compiled by Russell (1999) were based on samples of participants who completed learning programs, without considering those who dropped out prior to completion. Given the cost and consequences associated with noncompletion and dropping out, the differences could indeed be significant.

Instructors and facilitators play a vital role in delivering and facilitating structured learning interventions and retaining existing learners (Siebert, 2000). Although equally important for both traditional learning and e-learning, facilitating learning appears to be more critical in e-learning than in traditional settings (Salmon, 2000). The attributes of effective instructors and facilitators have been summarized as responsiveness, flexibility, accessibility, subject matter knowledge, questioning skills, facilitation skills, courage, and openness, among other things (Collison, Elbaum, Haavind, & Tinker, 2000; Rothwell & Sredl, 1992; Salmon, 2000). Instructors and facilitators lacking such attributes are less likely to motivate and retain learners through the completion of the planned learning for both traditional and technology-based learning interventions.

The technology-based learning environment is a factor specific to HRD e-learning-related interventions. It is essential in determining the dropout rate. Different from instructor-led learning processes, a technology-based e-learning environment is often a stand-alone system as technology interfaces independent of instructional design or facilitators' skills. Usually, technology-based e-learning is designed to allow learners to register and learn while interacting with an online instructor (Barclay, Gordon, Hollahan, & Lai, 2003). Attributes that may affect a learner's participation and completion or dropping out include perceived learning interface design, perceived usability, accessing speed, connectivity, and online page size.

Constructs for Organizational Cluster

The organizational cluster is a key differentiator on learning participation between general adult-learning and HRD-learning interventions. Based on previous studies, the following factors are discussed for this cluster: organization context, organization policies and regulations, and work content.

Organization context. Organization context consists of three variables: organization philosophy, learning culture, and organizational social support. Organization philosophy, as relevant to learning participation, refers to the extent to which employees are viewed as resources and human capital for the future, and continuing learning and development is emphasized (Maurer, 2002). Learning culture refers to a set of perceptions, attitudes, values, and practices that support and encourage a continuous process of learning for the organization and its members (Conner & Clawson, 2002). Organizational social support reflects a combination of influences from management, supervisors (feedback, follow-through, and follow-up), and peers, which has been found to influence learning participation (Maurer & Taurulli, 1994; Noe & Wilk, 1993). Conceivably, employees working in organizations with such philosophy and learning culture combined with supporting social networks will be more likely to participate in and carry through on an HRD learning program.

Organization policies and regulations. Organization policies and regulations also play a significant role in encouraging or discouraging employee learning participation. For instance, Motorola's previous policy required employees to attend a minimum of 40 hours in learning programs annually, and the completion was reviewed at annual performance appraisals with managers. Such policies will certainly encourage employees to seek learning opportunities in which to participate.

The work content. The work content includes such variables as job rotations (e.g., changing role, job content, status), task-related characteristics (e.g., job enrichment), obstacles (e.g., coping with different situations), and technical

updating (McCauley, Ruderman, Ohlott, & Morrow, 1994). These job variables affect participation by influencing employees' attitude and self-efficacy regarding their mastery and performance competencies and, consequently, their motivation toward learning participation (Maurer, 2002). Wang (1997) also found that learning participation was significantly different among employees in different industries and professions in the United States.

Constructs for Environmental Factors

In most situations, the impact of the macroenvironment on HRD learning participation is not as great as it is on general adult learning. However, there are two factors, economic conditions and uncontrollable disasters, that sometimes may directly affect the participation and completion of learning programs. Findings from Wang's (1997) empirical study suggested that learning opportunities in U.S. organizations were negatively related to the unemployment rate. A 1% increase in local unemployment rates appeared to be associated with a 1% or higher decrease in the probability of organizations offering learning programs. Likewise, we may infer that higher unemployment rates would boost employee participation rates.

Uncontrollable disasters as an environmental variable can also lead to unexpected results of learning participation. An interesting example is that the e-learning participation and completion rates reached the highest level in China, especially multinational organizations operating in China, during the SARS outbreak in 2003 (Wang et al., 2004). During that period, most business operations were forced to close because of the concerns of spreading the virus. Home-based work schedules combined with restricted public facilities access unintentionally created a home-based e-learning climate throughout many major cities in the country. Conceivably, uncontrollable disasters could also bring about totally opposite results to learning participation in organizations.

The dotted lines in Figure 1 represent implicit relationships among the three clusters of factors affecting employees' learning participation and completion rates. For example, the individual cluster may interact with learning process factors in the following way. If an individual recognizes that the learning content fits well to his or her educational background or personal learning needs, he or she would be more likely to participate and engage in the learning process and, consequently, complete the planned program. Likewise, if a learning program is designed in such a way that follows sound learning theories and instructional design principles, a learner may find it encouraging or stimulating to participate and complete it, even if he or she has no prior background knowledge on the subject.

Factors in the individual cluster may also interrelate to organizational factors. Changes imposed by internal or external challenges to an organiza-

tion, such as pressures from market competition or cultural change, may create learning opportunities for employees to participate in different HRD interventions. On the other hand, employees equipped with competent skills and knowledge through learning participation and completion may reinforce and strengthen the organizational factors and therefore create stronger organizational commitment to HRD learning interventions.

Organizational factors in the framework could also have direct or indirect connections with the learning process factors because learning subjects and objectives are frequently aligned with the business goals, and organizations are constantly searching for optimal delivery modes to achieve the business goals effectively. The current wave in learning management systems (LMSs) and learning content management systems (LCMSs) is an example of such links in HRD practice.

The technology component is considered as being embedded in the conceptual framework with all the three clusters. However, the role of technology in the three clusters is different in terms of its affect on learning participation. In addition to the aforementioned relationship between learning management technology and organizational factors as represented by LMSs and LCMSs, organizations may use technology to provide motivational mechanisms for learning participation, for instance, tracking and monitoring individuals' learning progress to promote the completion of learning interventions. Such practice is evidence of integrating the learning process and organizational factors.

The three clusters of learning participation constructs and relevant variables are summarized in Table 1.

The conceptual framework and the constructs are developed based on previous studies and are equally applicable to any types of HRD learning interventions, including the traditional face-to-face interventions, structured coaching or mentoring programs, e-learning programs, and blended learning interventions. In addition to the established conceptual framework and the constructs of learning participation, it is also necessary to further analyze and model HRD participation and completion process in terms of decision making.

Decision-Making Process: Participation and Completion

Organizations make decisions on HRD learning interventions based on business objectives and overall strategies. Such decisions could be a direct result of a new product or service launching, a change in human resource strategy, or a practice in dealing with competitions. The decision to participate arises only after a decision on HRD learning interventions has been made. Another decision—mostly ignored by previous studies—is an organization's decision on whether to make the learning intervention mandatory

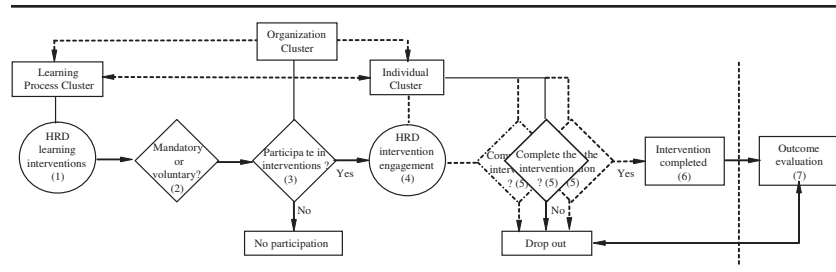


FIGURE 2: Relationship Between Learning Participation Decision Process and Model Constructs

or voluntary (Point 2 in Figure 2). Management and IO psychology literature thus far only concerns voluntary participation (Baldwin et al., 1991; Maurer, 2002; Maurer & Tarulli, 1994), with an implicit assumption that mandatory learning programs have no participation problems. This assumption becomes unrealistic, especially with the increased provision of HRD learning interventions via the Internet. The American Society for Training and Development and The Massie Center (2001) report did suggest that the participation and completion issue is a serious concern for both mandatory and voluntary learning interventions.

With the constructs and the variables discussed earlier and listed in Table 1, we intended to embrace all factors that determine and influence participation and completion behaviors for both mandatory and voluntary interventions. Certain variables in the constructs may become more predominant than others in a mandatory program and vice versa. For instance, personal characteristics, such as marital status, may have a greater power in explaining participation and dropout rates for voluntary programs because of family commitment, whereas job involvement may have a larger affect on the variations for mandatory programs (Wang et al., 2003). After Point 2 in Figure 2, the decision to participate and drop out should follow a similar path.

In HRD reality, Points 1 and 2 in Figure 2 may take place simultaneously, and the sequence may be indistinguishable. However, the decision on whether to participate at Point 3 will always occur after the first two points have taken place.

Once an employee is engaged in the intervention (Point 4 in Figure 2), the next decision is whether to complete the intervention or drop out (Point 5 in Figure 2). In fact, after Point 4 and through the program implementation, there is no fixed time period for Point 5 to take place. In other words, Point 5 features a dynamic process. Here, the combined interactions of the three clusters described in Table 1 play a critical role. A single variable or a combination of variables may trigger a dropout decision. An individual may

decide to drop out any time during the course of the intervention (between Points 4 and 6). This dynamic feature is signified by the mirrored (dotted) decision boxes. One of the main tasks of this proposed participation theory is to study and understand the interactive nature of the three clusters relating to individuals' behavior of completion or dropping out.

It is not difficult to justify that HRD M&E ought to be incorporated as a component of the process (Point 7 in Figure 2). Existing ME literature does not include the evaluation of the dropout phenomenon, which, in our opinion, is incomplete. We believe that M&E theories should cover the entire picture, as illustrated in Figure 2, because dropping out could be related to inadequate or improper results of needs assessment. An empirical study by Wang et al. (2003) found that one of the reasons for e-learners dropping out is that some employees perceived that they had learned sufficient information for the required tasks without completing the learning program. In this case, the HRD evaluation should consider measuring the outcomes of the decision to drop out. It is also worthwhile to evaluate those instances of dropping out caused by other variables, as identified in Table 1. The results may positively or negatively affect the evaluation results otherwise. For simplicity of the discussions and the scope of the article, we omit the description of in-process M&E effort during the learning process, as suggested by some authors (Russ-Eft & Preskill, in press; Spitzer, in press). However, we do believe that there is a direct linkage between in-process M&E and the participation theory proposed here.

In short, if we consider the framework in Figure 1 a cross-sectional conceptualization of the HRD participation theory, the decision-making process in Figure 2 should be deemed as a time-series representation of the decision and subsequent participation and completion sequence. The combination of the two aspects should allow us to explore participation decisions and behaviors to the full extent.

Operationalization and Applicability

We have presented the what, why, when, and who of the proposed participation theory thus far (Whetten, 1989). This section discusses how to operationalize the model and apply it to HRD participation research.

Although addressing the concern about e-learning dropout rates in HRD practice was one of the main tasks in this study, the conceptual model we have developed, along with the constructs, provides a holistic framework for exploring participation decision and behavior regarding any type of HRD learning intervention. In this section, a mathematical model is created to operationalize the conceptual framework and elucidate its potential applications in HRD research.

As mentioned previously, participation and completion involve different decisions at different points in time with respect to HRD learning interventions. By taking advantage of theoretical abstraction, the dynamic decision-making process depicted in Figure 2 can be converged into the following mathematical formats.

Let us first define the dependent variable participation as a vector,

$$\begin{pmatrix} p_1 \\ p_2 \\ \vdots \\ p_n \end{pmatrix},$$

where p_i represents a decision made by the i th employee for participating in an HRD learning intervention. Mathematically, $p_i = 1$ if the i th employee participates; $p_i = 0$ otherwise. Similarly, for the decision of whether to complete an intervention, let the vector

$$\begin{pmatrix} d_1 \\ d_2 \\ \vdots \\ d_n \end{pmatrix}$$

be those who drop out of an intervention before the completion. Where d_i represents the i th individual's decision, $d_i = 1$ if the i th employee drops out; $d_i = 0$ otherwise.

For simplicity, let $\mathbf{P} = \begin{pmatrix} p_1 \\ p_2 \\ \vdots \\ p_n \end{pmatrix}$, and $\mathbf{D} = \begin{pmatrix} d_1 \\ d_2 \\ \vdots \\ d_n \end{pmatrix}$.

Clearly, completion (C) and dropping out (D) are two opposite and related aspects of the same issue. In practice, both C and D can be measured in percentage rate or dichotomous 0 to 1. Through simple manipulation, therefore, it is convenient to relate the two in such a way that

$$D = (1 - C), \text{ or } C = (1 - D). \quad (1)$$

Equation 1 indicates that for a given HRD intervention, the completion rate (C) can be derived from the dropout rate (D) and vice versa. Given the similarity of C and D, we will use the two concepts interchangeably in the subsequent discussion.

Next, let the cluster of personal factors be a vector of

$$\begin{pmatrix} i_1 \\ i_2 \\ \vdots \\ i_n \end{pmatrix},$$

where $i_1, i_2,$ and i_n are individual characteristic factors (Column 1, Table 1). Furthermore, we designate a vector of learning process factors

$$\begin{pmatrix} l_1 \\ l_2 \\ \vdots \\ l_n \end{pmatrix},$$

where $l_1, l_2,$ and l_n may be factors related to learning process (Column 2, Table 1). Likewise, the cluster of organizational factors can be defined as a vector of

$$\begin{pmatrix} c_1 \\ c_2 \\ \vdots \\ c_n \end{pmatrix},$$

where $c_1, c_2,$ and c_n represent variables specified in Column 3 of Table 1.

Last, as discussed in the conceptual framework, the environmental cluster (Column 4, Table 1) can be represented as a vector of

$$\begin{pmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_n \end{pmatrix},$$

where $\beta_1, \beta_2,$ and β_n correspond to various environmental factors, such as job market conditions, unemployment rate, uncontrollable disasters, and so forth.

Combining all the vectors and clusters together and considering potential measurement errors, we have the following equation:

$$P = f \left[\begin{pmatrix} i_1 \\ i_2 \\ \vdots \\ i_n \end{pmatrix}, \begin{pmatrix} l_1 \\ l_2 \\ \vdots \\ l_n \end{pmatrix}, \begin{pmatrix} c_1 \\ c_2 \\ \vdots \\ c_n \end{pmatrix}, \begin{pmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_n \end{pmatrix}, \begin{pmatrix} \alpha_1 \\ \alpha_2 \\ \vdots \\ \alpha_n \end{pmatrix} \right], \tag{2}$$

α_i denotes measurement error.

Equation 2 can be used to identify determinants of the first decision on participation, namely, whether to involve a particular employee in a given HRD learn-

ing intervention. Similarly, to identify factors influencing the dropout rate, we have

$$D = g \left[\begin{array}{c} (i_1) \\ (i_2) \\ \vdots \\ (i_n) \end{array}, \begin{array}{c} (l_1) \\ (l_2) \\ \vdots \\ (l_n) \end{array}, \begin{array}{c} (c_1) \\ (c_2) \\ \vdots \\ (c_n) \end{array}, \begin{array}{c} (\beta_1) \\ (\beta_2) \\ \vdots \\ (\beta_n) \end{array}, \begin{array}{c} (\alpha_1) \\ (\alpha_2) \\ \vdots \\ (\alpha_n) \end{array} \right]. \quad (3)$$

In research process, one can define vector P in Equation 2 as a dichotomous variable (i.e., $p_i = 1$ if an individual participates; $p_i = 0$ otherwise). Similarly, vector D in Equation 3 can be defined as either dummies or continuous variables, ranging from 0% to 100%, representing completion or dropout rate. Data on the right-hand side of Equations 2 and 3 are also quantifiable as demonstrated by previous studies and may be obtained through organization or industry surveys. Given sufficient data, Equation 2 may stand as a logistic regression or linear probability regression, and Equation 3 may correspond to a general linear or nonlinear regression process. The resulting regression coefficients of each variable can then be identified and interpreted as influencing factors or determinants on the dependent variables based on predetermined statistical parameters, such as significance levels.

When interpreting results, attention must be given to the signs of the resulting coefficients, especially when vector D, the drop out, is used as the dependent variable. For example, if motivation as a variable is included in the analysis, we would expect the coefficient to be a negative value. The reason is simple. Better or highly motivated individuals are less likely to drop out. Such knowledge and analytical skills are critical to the effective application of the conceptual framework and the operational model proposed in the study.

As illustrated by the graphical displays, the model can be used for both cross-sectional and time-series studies of learning participation. Generally speaking, cross-sectional studies at the organizational level require relatively less effort on data collection (e.g., variables in the environmental cluster may be assumed to be constant and omitted from the model). And the results obtained may assist practitioners in focusing improvement efforts on identified major determinants of participation and drop out. For instance, if variables in the learning process cluster are identified as significant determinants of learning participation or completion, practitioners can take advantage of their expertise and directly address the issue to improve participation and completion. On the other hand, time-series (or longitudinal) studies based on Figure 2 may be conducted not only at the organizational level but also at industry, occupational, regional, or even national levels to examine the participation issues for a longer period of time and identify trends in participation and completion because of changes in technology

(e.g., e-learning) or economic conditions and other environmental variables. Such studies may provide valuable information for policy makers in devising relevant strategies and measures at corresponding levels. With time, multiple cross-sectional studies at different points of time may be integrated into meta-analyses of time-series or longitudinal studies for more in-depth exploration of the nature, patterns, and behaviors of learning participation in and completion of HRD interventions.

The proposed conceptual framework can also guide empirical qualitative inquiry. On one hand, HRD qualitative researchers may use the constructs and processes, as depicted in Figures 1 and 2, to inform their thinking, guide the overall research design, and facilitate the development of interview questions or observational protocols. On the other hand, the newly built theory can also benefit from the distinctive characteristics of qualitative research, such as naturalistic inquiry, researcher as the instrument, purposeful sampling, and inductive analytical approach (Lincoln & Guba, 1985; Merriam, 2001; Patton, 2002). In other words, the preordained constructed variables may be validated, reinforced, and supplemented with emergent qualitative data. In fact, the flexibility embedded in qualitative studies allow HRD researchers to (a) be highly adaptive and responsive to the context, (b) explore the learning participation and completion and dropout rates from a holistic view, (c) gather and explore rich soft data that may be new or different from what we have identified here, and (d) build toward theory from an in-depth understanding of the phenomenon gained in the field. In fact, given the complexity of the issue of learning participation and completion and dropout rates under concern, the multiplicity of influencing factors, and the dynamic interactions among them, qualitative approaches may be highly applicable and meaningful in strengthening our current understanding and improving the proposed framework.

In summary, this section discusses how the proposed model and constructs can be operationalized and empirically used to study the participation and completion phenomenon and to inform practitioners of how to improve HRD learning interventions. Although the model is yet to be tested in reality, prior studies in HRD participation have provided feasible empirical bases to validate those variables as included in the individual, learning process (Wang et al., 2003, 2004), organizational, and environmental clusters (Baldwin et al., 1991; Hicks & Klimoski, 1987; Maurer & Tarulli, 1994; Noe & Wilk, 1993; Wang, 1997). We are strongly convinced of its generalizability and applicability in HRD research and practice.

Implications for HRD Research

The participation theory for HRD learning interventions that we proposed in this article is consistent with existing research and empirical inves-

tigations. Extending the scope to include the learning process and linking it with outcome M&E, the theory has important implications for future HRD research and theory building.

First, the theory provides a framework for exploring a long-overlooked area by HRD researchers. The cross-sectional theoretical constructs and time-series decision processes (see Figures 1 and 2) offer a new insight into learning participation, a seemingly simple HRD process in routine organization practice. It also presents an example of theory building based on prior empirical evidence. The structure and the induction of the proposed theory may provoke new thinking regarding other related HRD practices and further enhance HRD theory-building efforts.

Second, the proposed theory connects participation and completion with M&E of HRD learning intervention beyond the four-level taxonomy, as defined by Kirkpatrick (1998). This linkage may trigger additional research to understand the relationship between participation behavior and process and the four-level taxonomy. The theory also raises certain issues regarding a hot topic: return on investment (ROI) measurement practice. The questions may include the following: Should we consider dropout as part of a program cost; if yes, how should we approach ROI measurement to encompass the cost of dropouts? How should we measure program ROI while considering those who drop out of the program because sufficient skills have been learned for the tasks defined? Should there be different approaches to measuring dropout costs for mandatory and voluntary HRD learning programs?

Last but not the least, the theory provides an analytical instrument for HRD researchers to explore and understand e-learning participation and dropout rates, as much as those for traditional HRD learning interventions. To date, we have little knowledge regarding the nature, pattern, and behavior of both mandatory and voluntary participation of traditional HRD learning interventions to its full scale. We know even less about the reasons and factors affecting e-learning participation and dropout rates, beside information reported by popular press and industry surveys. Much more research needs to be done. The theoretical model derived from this article may provide a platform and function as a stimulator for HRD researchers and practitioners to begin to study and further understand participation and completion of both traditional and e-learning HRD programs.

Conclusion

Building on a comprehensive review of existing research on learning participation in both adult learning and management and IO psychology literature, this article fills a gap by presenting a participation theory with a conceptual framework for the purpose of exploring and examining the nature of

decision making and the pattern and behavior of HRD learning participation and completion by employees and organizations. Three construct clusters are established and discussed, including individual, learning process, and organizational clusters. An operational model is also formulated to demonstrate how the proposed theory may be applied to empirically investigate the relevant HRD practices. The proposed model is applicable to both traditional and nontraditional HRD interventions.

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Greg G. Wang is an assistant professor of human resource development (HRD) at James Madison University. His research focus has been on economic foundations of HRD, result assessment and measurement methodologies, performance improvement, e-learning interventions, and international HRD. Formerly with General Electric, Motorola, and Pennsylvania Power and Light, he speaks frequently on human capital and measurement methods at national and international conferences, including keynote speeches in China, India, Russia, and the

United Kingdom. Actively involved in HRD practice, he has consulted with IBM, General Electric, Hewlett Packard, and a number of other major corporations. He is the founder and moderator of the Internet forum ROInet, which has more than 1,400 researchers and practitioners from more than 40 countries.

Jia Wang is an assistant professor at the department of HRD at Barry University. With a wide range of international HRD experiences, her research interests include management development in international settings, organization development, performance improvement, and research methods. She received an M.B.A. from Aston University, United Kingdom, and an M.Ed. and Ph.D. in human resource and organization development from the University of Georgia.