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ABSTRACT

This symposium on research issues in human resource development (HRD) consists of three presentations. "The Influence of Theories of Action on Action Research Initiatives: One Dying Division's Case" (Linda Neavel Dickens) reports an interpretive case study to illuminate how individual, team, and organizational practices and theories of action influence participation in, and outcomes of, action research initiatives. Findings suggest that participants designed and implemented actions that resulted in unintended consequences, limited learning, and, ultimately, the demise of the action research team. "Women's Ways of Knowing: A Conceptual Framework for HRD Research" (Yvonne M. Johnson) is a feminist essay that seeks to expand the HRD literature by using such a conceptual framework to analyze a study abroad experience. "A Critical Review of Research and Statistical Methodologies Within HRD Quarterly (HRDQ), Academy of Management Journal (AMJ), and Personnel Psychology, 1995-99" (Heather A Williams) reviews articles in the three journals for 1995-99 and in the AMJ for 1975-79, to identify the most used research methods and trends in 1995-99, to compare methodologies between the HRDQ and AMJ samples, to describe recent HRD research, and to determine whether HRD as a discipline is at a developmental point similar to that of the discipline management during 1975-79. All three papers include bibliographies. (YLB)

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The Influence of Theories of Action on Action Research Initiatives: One Dying Division's Case

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The purpose of this interpretive case study research is to illuminate how individual, team, and organizational practices and theories of action influence participation in and outcomes of action research initiatives. Findings, based on in-depth interviews with action research team members, and conclusions, based on the action science analytical framework, suggest that participants designed and implemented actions that resulted in unintended consequences, limited learning, and ultimately, the demise of the action research team.

Keywords: Action Research Application, Action Science Application, Theories of Action

This study arose from an agreement between a University Adult Education Program and Southwest Technologies (ST), a high-technology company. The contract, which was to last three years, stated that University faculty and a research assistant would provide training and change facilitation for the STRIPE division. An action research team, comprised of eight manager-selected STRIPE employees and the research assistant, would monitor the implementation of quality and empowerment strategies. After initial training, Action Research Team (ART) members chose to focus on cultural norms of challenging non-value-added work. They developed a written survey to distribute to 70 of the 500 employees, yet only two STRIPE members disseminated them to their work groups. Six questionnaires were returned. After discussing frustrations about team processes and team leadership at multiple meetings and analyzing the small amount of data, members created individual projects to study specific occurrences of non-value-added work, which ultimately produced minimal insight or action. Several months later, they followed the request of a manager to interview 10% of employees about frustrating and positive characteristics of STRIPE. Over the next few months, participants collected and analyzed over 100 critical incidents. One year after beginning the initiative, ART members met with management to present findings, reflect on learning, and secure support and direction. After a team presentation and management response, the meeting ended with no decisions about the team's future. In the ensuing weeks, managers decided they would not refund the initiative, arguing that they had not seen enough progress. Less than 12 months after the termination of the action research initiative, Southwest Technologies shut down the STRIPE division and laid off hundreds of employees.

This paper explores how team members' theories of action affected the course of the action research team and contributed to its demise. It illustrates how individual, team, and organizational practices influenced participation in and outcomes of the action research initiative.

Problem Statement and Research Question

Theorists and practitioners espouse the value of using action research to create organizational change. French and Bell (1990) note: "The payoff from a good action research project is high: practical problems get solved, a contribution is made to theory and to practice in behavioral science, and greater understanding grows among scientist, practitioner, and layperson" (p. 60). Action research studies, however, generally focus on interventions at the team or organization level, affording a limited theoretical base from which to draw conclusions about individual practices. Thus, literature fails to document how individual practices influence action research initiatives. Kemmis and McTaggart (1988) outline three elements that are critical—on individual and social levels—to implementation of action research: language; activities and practices; and social relationships and organization. Yet what practitioners actually say and do and how they create meaning has not been documented. In order to understand how individuals engage in action research, this study uses the action science analytical framework to analyze individual team member contributions and to illustrate meaning making. It addresses the issue of involvement—a Lewinian requisite—more thoroughly than previous studies. The study illuminates how team members affect and experience action research. It answers the research question: How do individual, team, and organizational theories of action influence action research initiatives?

Theoretical Framework

Argyris (1989) identifies action science as a form of action research. Action research follows a cycle of planning, acting, observing, reflecting; similarly, action science follows a cycle of testing, listening, learning, testing (Argyris and Schon, 1996). It views humans as designers and implementers of their actions and acknowledges language as the basic form of action (Argyris, 1989; Argyris & Schon, 1996). Ultimately, according to Argyris, its purpose "is to produce valid generalizations about how individuals and social systems...can design and implement their intentions in everyday life" (p. 469). Action science addresses the nature of explicit and implicit cultural activity and aids in explaining reasoning that governs actions (Schwartzman, 1993). The reasoning depends upon one's theory of action, which Argyris and Schon (1987) define as deliberate human behavior informed by a theory of control. In other words, it provides a value system for managing and designing one's action. Theories of action are comprised of espoused theories (what we think or say we do) and theories-in-use (what we actually do). While these match at times, they frequently do not in potentially embarrassing or threatening situations. During challenging situations, defensive reasoning may inhibit our ability to act in accordance with our espoused theories. Our strategies may reflect a dilemma that prevents rational reasoning and action (Brooks & Watkins, 1994). Human behavior is driven by theories-in-use, although we may not be conscious of them. They generally remain tacit, yet when they become explicit, they provide the opportunity to transform our action and engage in significant learning.

When defensive theories-in-use remain unchallenged, they may result in Model I behaviors. Argyris (1987, 1989) proposes that four governing values underlie Model I: achieve the purpose as the actor defines it; win, do not lose; suppress negative feelings; emphasize rationality. When we act out these values, we exert unilateral control over our environment while also protecting ourselves. While we may learn to change behaviors, we do not change underlying values. These strategies generally result in unintended consequences, and little learning occurs. Other consequences include defensive interpersonal and group relationships, low freedom of choice, and reduced production of valid information (Argyris et al., 1987). In contrast, Model II theories-in-use rely on valid information; free and informed choice; internal commitment to the choice (Argyris, 1987, 1989). Acting out Model II allows us to share control in order to produce valid and useful information; we are able to reflect on underlying values and design effective, consonant actions. Model II conduct results in minimally defensive interpersonal and group relationships, high freedom of choice, and high risk taking (Argyris, 1987, 1989). It greatly increases the probability that outcomes match intentions. To inform inquiry into theories of action, data collection consists of creating a case that contains the recollections of actions and speech by the actors and the identification of reasoning and rules that govern actions. Data analysis consists of discovering the meanings embedded in the action and representing the knowledge thus acquired in a way that is both disconfirmable and actionable (Watkins, 1991).

Methodology

This study utilizes the qualitative methodology of interviewing to uncover theories of action. The value of qualitative investigation generally resides in the discovery of human experiences as lived and perceived by subjects (Sandelowski, 1986). Walker (1995) says to understand other persons' constructions of reality, we need to ask them in such a way that they may tell us in their own terms and in depth. Interviews used the critical incident technique, a type of story-telling that identifies participant experiences. It is an especially informative way by which individuals express their understanding of experiences (Flanagan, 1954; Laird, 1985; Mishler, 1986). Because critical incidents are accounts described by people about actions in their own lives, they are incontrovertible sources of data representing their own existential realities (Mezirow, 1990). The interview purpose was to uncover team members' reconstructions of persons, events, activities, feelings, and concerns as experienced in the past (Lincoln & Guba, 1985). The goal was to elicit the unique and personal viewpoint of each participant. With the addition of meaning making, guided by the action science analytical framework, the stories describe the significance, value, and intention of events (Connelly and Clandinin, 1990). Six out of eight team members agreed to participate in interviews, and their employment spans at ST ranged from 13 to 33 years. Four of the six held college degrees.

The interviews were informal and minimally structured to capture each participant's story in his/her own words; they lasted from 45 minutes to two hours. Interviews began with questions about the first time they heard about ART and how they came to join; they proceeded with prompts about team members' recollection of critical incidents. Interview audiocassettes were transcribed in full, and data reduction produced 80 single-space pages of codable transcript. I used Argyris et al.'s (1987) descriptions of Model I, Opposite Model I and Model II to label governing values and looked for perspectives that were repeated within one transcript or across transcripts. In my analysis, I selected representative quotations that clearly characterized a person, the team, or the organization and could illustrate research interpretations.

Analysis of the critical incident interview data is bounded by the interpretive research paradigm that espouses, "All knowledge is subjective knowledge and exists only through an individual perception and the interpretation of reality by the researcher" (Perry & Zuber-Skerritt, 1994, p. 353). Using action science as the analytical framework, this study provides analysis of the interactions from person to person, person to team, and person to organization. Analysis maps display governing values, attributions, and evaluations that became primary action strategies, plus consequences for individual, team, and organizational learning. Argyris et al. (1987) write that maps "describe the tacit logic that informs social action and the implications of this for the behavioral worlds of the actors" (p. 248). The maps include only Model I and Opposite Model I examples because in the history of a team that experienced an aborted action research initiative, Model I reasoning and the inhibitors to double-loop learning are paramount to Model II strategies. Furthermore, no episodes of Model II behavior appeared in the transcripts.

One limitation of the study arises from the fact that not all team members could be interviewed. One participant declined interview requests; another had moved from the area. Other issues stem from the facts that participants did not have the opportunity to confirm or disconfirm the maps and that no intervention was developed from the maps as Argyris et al. (1987) recommend. The limitation, consequently, is that the maps may be considered incomplete (Watkins & Shindell, 1994).

Results and Findings

Progress of action research teams hinges on complex behaviors and their underlying values. Since the nature of action research is social—individuals collaborating to create change—personal values are as significant as problems under study. The character of a team cannot be divorced from the members of which it is comprised; individuals impact the team accomplishments and interpret the process based on their own frameworks. Since action research, essentially, is an approach to learning, we can neither answer the query *How do individual, team, and organizational theories of action influence action research initiatives*? nor consider theories of action and implementation of action research without also considering extent of learning. During interviews, ART members reported experiencing limited learning. Several said they began using the critical incident technique; one said she previously had not known culture could change. Other than those instances, they reported learning nothing. Maps demonstrate, further, that participants designed and implemented actions that resulted in limited learning. By behaving unilaterally toward others and protectively toward themselves, members fostered the defensiveness and mistrust apparent in the quotations. Argyris and Schon (1996) argue that organizational and individual theories of action are interdependent, yet maps suggest that the former have a greater influence on the latter. Members exhibited little trust in the organization; data imply that the mistrust was learned, given the STRIPE culture. They perceived it as hostile, capricious, withholding of rewards, unfair, and, most significantly, dying.

Figure 1 provides examples of member's espoused theories and theories-in-use. Figure 2 presents maps that attribute theories of action, propose a theory of explanation, and outline consequences (Argyris et al., 1987) for six team members, the action research team, and the organization.

Figure 1: Examples of ART Members' Espoused Theories and Theories-in-use

Olga:	*Espoused*: You should always keep an open mind. *Theory-in-use*: There's all these people keep trying to spoon feed this stuff down you all the time, and you're sitting there going, "I'm not interested anymore. You're not giving me anything to fulfill me enough, to want to have the incentive enough to do it!"
Stewart:	*Espoused*: Everyone said, "What goes on in here, what's discussed in here, stays in here." *Theory-in-use*: The coffee talk the next couple days was more reaction to it...it was a demonstration by someone who is not who you would view as being the role model.
Eddie:	*Espoused*: I was glad I participated; I learned, felt good about things. *Theory-in-use*: I just wasn't happy with the team at all. I just never felt good about it.
Charlie:	*Espoused*: I think that people have the freedom to be as empowered as they want to be. *Theory-in-use*: You think you're doing a good job then your manager will come in and tell you something that gives you the feeling, "What am I doing here?"...It's such a let down, you wonder why you exist...I didn't get the support I needed to put things into place.
Naomi:	*Espoused*: They just wanted us to be robots. They would probably love that. *Theory-in-use*: I felt this is what we needed to go do since [the manager] said that. Since he told us to do it, well then that's what we should do.
Norma:	*Espoused*: I don't feel like [Eddie] held any resentment to [getting demoted]. *Theory-in-use*: We had Eddie, who was the head of our building, we would have felt really empowered. But once he was demoted, he felt disempowered.

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Figure 2: Action Science Maps

Map Reflecting Individual Practices

Values	Action Strategies	Quotation	Individual Consequences	Team Consequences
·Finish what you start ·Keep your commitments	·Criticize those who do not follow through	*Olga*: They made a big hype about empowerment then we headed there and it just kind of went and fizzled. ST has a tendency to do that sometimes. *Olga*: It's like 'We're going to do this! We're going to do that! We're going to be empowered.' And then all of a sudden they make a big deal about it, but they never follow through with it.	·Negative expectations ·Avoids responsibility ·Defensive relationships ·Sense of hopelessness	·Avoids action ·Self-fulfilling prophecies ·Polarization
·Be concrete ·Be action-oriented	·Pursue concrete guidelines ·Pursue action strategies	*Stewart*: I think we all wanted to go out of there with four or five tools. I can pick them up and feel them and hold them and know exactly what they are. [I need to] learn more about this so that at some point an idea will click and we'll be able to take this vague notion of 'Let's make change' and follow towards something that takes action. I've heard that team action and I expected to see action. Physical changes, that's what I consider action.	·Low freedom of choice ·Minimizes change ·Decreased reflection	·Minimize learning ·Limits learning
·We don't know what we need to know	·Blame lack of education or information	*Eddie*: I don't think any of us were prepared to understand what we had. We [would need] an awful lot more psychology courses, sociology courses. We were a bunch of engineers, we didn't have much of that.	·Self-sealing behavior ·Minimized learning ·Avoids responsibility	·Avoids action ·Self-sealing
·Management can not be trusted	·Question management motives	*Eddie*: There wasn't the patience to keep it going. Management stopped it. But we could pretty well see it coming. It bothers me so much…It's horrible, but it seemed like they had a program of the month. Get it going, put a bullet on [management's] form and you better have another bullet next month.	·Blames management ·Self-fulfilling prophecy ·Sense of hopelessness ·Negative expectations	·Polarization ·Reliance on managers
·Minimize negative feelings	·Create inconsistent messages	*Eddie*: With the team there wasn't nothing real good, nothing real bad. I wasn't happy with it all. I never felt good about the team, but I really enjoyed it.	·Avoids underlying issues ·Undiscussability	·Games of deception
·Work is unsatisfying	·Minimize personal needs	*Charlie*: It may do you good personally, but that's not important, because personal satisfaction has very little use anymore, and what you're trying to do is get your job done and go home and do it the best you can, and it doesn't really matter whether you feel good about it. That's not really important.	·Disempowerment ·Isolation	·Avoids connection
·Opinions thwart action	·Minimize personal opinions	*Charlie*: There were too many people in there with too many opinions; that might be okay for trying to put together a new concept or trying to make people feel better, but in trying to make something happen, it just doesn't work.	·Defensive relationships ·Avoids dialogue	·Win-lose dynamics
·People need to be controlled	·Criticize employees	*Naomi*: People don't follow through on their jobs. That's the whole problem with this whole company. People need to be put on disciplinary action. Some of the supervisors aren't carefully watching it, either.	·Defensive relationships ·Negative expectations	·Win-lose ·Polarization
	·Frame the employer-employee relationship as a parent-child relationship	*Naomi*: It would've helped if management said, "Okay, they've discovered these problems. This is what we're going to do and supervis ors will enforce it." If they didn't, put supervisors on disciplinary action. Then it would work. That's what it would take to get them to do a better job. I mean, kids, that's from when you were a child. I don't know why they don't do better.	·Defensive relationships ·Avoids dialogue ·Dependence on external control	·Win-lose ·Dependence on managers
·Managers want to control	·Criticize managers for not listening	*Naomi*: They all want to do their way and want you to agree to doing it their way, and they don't even listen to other people's opinions.	·Defensive relationships ·Avoids dialogue	·Polarization

·We have little control	·Blame external sources	*Norma*: Other than the learning and going to the courses to learn the tools ... I really have no positive memories of what this team did. It's a shame to say...I think we were just fighting a situation here.	·Avoids responsibility ·Sense of hopelessness ·Self-sealing behavior	·Camouflage ·Self-sealing processes
·Leaders don't lead effectively	·Blame ·Make attributions	*Norma*: [Eddie] caused team to be dysfunctional... You think you're on the right track for so many months and hear that you're completely on the wrong track, you're just flabbergasted. The networking or communication between [Eddie] and up above wasn't there. Maybe he was off doing things on his own and never looking at the vision from above.	·Defensive relationships ·Avoids responsibility	·Polarization
·Suppress negative feelings	·Create inconsistent messages	*Norma*: We were working in a dysfunctional family... That's what our team was, a really good family.	·Avoids underlying issues	·Games of deception

Map Reflecting STRIPE Action Research Team

Values	Action Strategies	Quotation	Team Consequences
·Avoid real issues	·Discuss peripheral problems	*Eddie*: We had open discussions on problems but they were peripheral ...it didn't help us make headway. We did have some discussions and we had some disagreements but they were superficial.	·Inaction ·Invalid information
·ST does not value people ·Don't trust managers	·Show false interest ·Make attributions	*Naomi*: We attempted to try to make the people feel we were interested in how they feel. But that was the team. Management would ask people to make it look like they're interested in opinions, but when it comes down to it, "We're going to do it my way."	·Polarization
·ST is rife with incompetence	·Blame ·Remain cynical	*Charlie*: ART was as disorganized as the organization...nothing different between ART and what was going on outside. Everybody pulled in his own direction, and there was no control or leadership.	·Learned helplessness ·Inaction
·Strong individuals cannot work together, but I can try to make them	·Blame ·Believe you can control others	I just never did get the team to work as a team. The ones I picked were pretty much individualists. *Eddie*: They were all leaders in their areas. They all worked. I've seen them work good on other teams. I never did get them together. I'm disappointed in that. They were still individuals instead of a team.	

Map Reflecting Southwest Technologies

Values	Action Strategies	Quotation	Organizational Consequences
·Work hard, even if I'm spinning my wheels or it's futile	·Work harder	*Norma*: All of us were already spending 45 hours a week here, minimum. By being members of this team, we were spending 50. I don't think we were given time to do what we needed to do. If it was truly important management would give you time and put people on it who were assigned to work. All of us thought "Is this worth it, are we going to get anything out of it?" We kept going ahead because we thought if there was any way they could help the company or help people, we were going to try it to the very end.	·Employee burnout ·Polarization ·Resentment
·Blame managers		*Charlie*: Everybody pulled in [opposite] directions...We had managers, everyone was a Don Quixote, doing his own thing, "I know how to do that."	·Polarization ·Resentment
·Ignore problems		*Naomi*: [I thought] we could develop the orientation to get problems solved or just the attention of managers that there were problems actually going on. I don't think they realized what was going on.	·Mistrust ·Cynicism
·Blame employees		*Naomi*: [Supervisors] are in the hot seat. If he does good, fine. If he does bad, our center doesn't do what it's supposed to, management says, "It's your fault." It's not one person's responsibility.	·Resentment ·Polarization
·Pseudo-autonomous work group has no autonomy	·Follow management edicts	*Naomi*: [We needed to interview employees] since Kirk said that. Since he told us to do it, well then, that's what we should do. We didn't really have a choice because that's what he wanted to see.	·Learned helpless ·Disempowerment
·Every one is out for himself	·Blame	*Eddie*: There was such a lack of cooperation. Everybody was out primarily to impress management. There was no line of command. It was there but everybody ignored it, [management] encouraged that.	·Win-lose dynamics
·Our organization is dying		*Eddie*: It was a dying business, they made it, when they said, "No, we're not going to be [in a particular market]." It was doomed from that day on. We made some good product, but it was still doomed.	·Job insecurity ·Limited loyalty

Team members may have engaged in Model I behaviors to cope with embarrassment they experienced working with the team (Argyris and Schon, 1996). Indeed, two admitted they were embarrassed to be on a team that failed to deliver what it promised. Model I behaviors also were triggered by their attempts to meet the challenge of changing the STRIPE culture, and participants experienced conditions that encouraged the production of error: vague, unclear, and scattered information, inconsistency, and incongruency (Argyris, 1992). Team members reported facing these conditions among themselves, from team leaders, from top administrators, and from the action research process, itself. They considered the methodology of action research vague; the vision from administrators unclear; the behaviors of administrators inconsistent; the actions of administrators and team members incongruent. From all levels, team members experienced reinforcement of Model I behaviors. One of the predominant forms of the Model I theory-in-use was engaging in blaming activities. As the maps convey, team members assigned blame to one another, upper managers, other employees, organizational culture, and education and educators. Participants pointed to a multitude of things that other people did or said as a way to excuse their personal actions or team actions.

Conclusions and Recommendations

Based on their perceptions of each other and the organization, team members must have felt that their ability to create change was threatened. This suggests that participants may have viewed their membership as a threat, as well. Although they identified constraints to the project during its incipient stages, they were unable to minimize the impact. Their responses arose out of the status quo, the usual way of working, and their attributions fit predictions in which change would be unlikely (Argyris & Schon, 1996). Attributions and comments indicate two overwhelmingly apparent intentions: dominate and avoid domination or win, and not lose (Argyris, 1989). Two issues stand out. First, any attempt to dominate is an un-democratic act, counter to norms of action research. In a democratic team, members interrelate with shared power, yet ART members' remarks suggest they felt unequal to one another, which is antithetical to Lewin's ideology. What led them to experience inequality when most were on comparable levels in the STRIPE hierarchy? Second, as team members asserted, Southwest Technologies rewarded domination. How can an organization that rewards domination simultaneously engage in action research? Team members were caught in the paradox. If they behaved on the action research team as they did on other teams, i.e., dominating, they perceived they would gain something or at least not lose anything. Yet they polarized each other, which led to ineffectiveness and limited learning. If they acted collaboratively and democratically, then ART would be at odds with STRIPE culture. This also would lead to alienation and ineffectiveness within the larger system. "Incompatibilities in organizational theories-in-use tend to be expressed in interpersonal conflicts, which individuals live out in terms of win/lose games" (Argyris & Schon, 1996, p. 91). Consequently, team members fell into patterns of domination and attempting to avoid domination. Thus, attributions such as "extreme," "protecting their own turf," "poor leadership," "dysfunctional," "individualists" pepper the maps.

In efforts to avoid domination, ART members allowed distrust and escalating error to encourage individualism, well illustrated when they splintered and pursued ineffective individual projects. They did not collaborate during those months, yet expressed their highest energy for the team. When they could control their actions unilaterally—choose, plan, and implement their ideas without negotiating—participants thought they were making progress. Kemmis and McTaggart (1988) argue, "Action research is not individualistic. To lapse into individualism is to destroy the critical dynamic of the group" (p. 15). Marsick and Watkins (1994) believe individualism presents a barrier to community and collaboration. What happens when teammates never supersede individualism? As these two references intimate, individualism either leads to or results from self-protection. This signals a second paradox trapping the team. In either case, individualism inhibits the ability of teammates to learn and create change. Indeed, ART showed few signs of functioning as an action research team. Members struggled with their work, but neither examined their approach to the struggles nor looked critically at problem solving methods; nor did they evaluate and modify internal functioning (Mink et al., 1979). ART was not the self-critical community that could lead to improved practice (Kemmis & McTaggart, 1988); nor did members participate as both subjects and objects of research (Miller, 1994). This implies a third paradox. If they reflected on their methods, members could have established a potent collective voice; if they felt a strong team identity, they would have had the motivation and trust to explore their practice. Argyris (1989) notes that the first step in any such research undertaking is to:

activate and surface inner contradictions embedded in everyday actions. But the essential feature of inner contradictions is that they are hidden by layers of taken for granted action. These layers of action, and any defenses that surround them, must be unpeeled. But to unpeel them requires that people become aware of defenses they use to keep these actions from surfacing into their awareness (p. 475).

Managers invalidated ART–and camouflaged they were doing so–when they said they had not seen enough progress. They consequently created a greater degree of defensiveness and disempowerment in a team they claimed they wanted to empower. Maps support that the ambiguity, inconsistency, and defensiveness of managers and team members led to ART's untimely end. This becomes curious in light of Argyris and Schon's (1996) comment that the "scientific cycle of hypothesis forming and testing...comes appropriately to a close when their inquiry enables them to achieve their intended results and when they like, or can live with, the unintended side effects inherent in their designing" (p. 37). If the undiscussability was designed, as Argyris and Schon's theory would contend, and caused the project to die, it introduces questions about participants' intended results. Did team members and managers achieve a state with which they could live? Certainly, they were familiar with the STRIPE routine of abandoning projects, and the death of the action research project was not unforeseen. Argyris and Schon state:

> When the outcomes of our actions are mismatched to expectations, the inquirer gets an experience of surprise—an experience essential... to the process of coming to think and act in a new way. The attempt to resolve a problematic situation frequently generates new sources of surprise (p. 31).

Data illustrate that team members were not surprised by the team's demise, suggesting that expectations about the possibilities of action research were fulfilled. That is to say, they held little hope for possibility.

This analysis of ART member practices provides evidence that we have much to learn about team member contribution to action research initiatives. To understand more about the influence of individual values and practices, future researchers may want to utilize different analytical frameworks or investigate different arenas. Additionally, the data in the study suggest that team members may vest power in a leader who may constrain or drive the project. Research into the phenomenon of leadership within an action research team may provide better comprehension of the nature of shared power and the character of democratic groups attempting change.

Contributions to Theory and Human Resource Development Knowledge

Through its attention to language, basic tools of both action research and action science, this study contributes to both. Kemmis and McTaggart (1988) assert that patterns of language-use are a reflection of a group and must change if the group is to change. In action research and action science, the use, understanding, and interpretation of words is critical to achieving change; words are an important source of data that make a science of these action strategies. Argyris and Schon (1996) note that theories of action must be identified through the collection of relatively observable data. Traditionally, action science maps have failed to include these data, depending instead on inferences and propositions. If words are action and maps represent social action (Argyris et al., 1987), then maps require language-in-use for illustration. To address weaknesses posed by traditional action science maps and to strengthen their validity, this paper proposes another element: direct participant quotations, which supply directly-observable data that show the language representative of individual theories of action.

This study also explains how practitioners interact with action research on an emotional level, how they make meaning and construct reality. Chisholm and Elden (1993) report that practitioners' "frameworks for understanding and explaining their world" (p. 11) should be a part of action research efforts. Previous studies (e.g., Clark, 1976) allude to the importance of theories of action without exploring them. This study demonstrates how values can influence action research initiatives. Significantly, action research intends to challenge individual values, which is why it is important for practitioners to understand the process on an individual level. According to Kemmis and McTaggart (1988) "it aims to build communities of people committed to enlightening themselves about the relationship between circumstance, action, and the consequence of their own situation, and emancipating themselves from the institutional and personal constraints which limit their power to live their own legitimate...values" (p. 23).

For the human resource development practitioner, understanding both language that inhibits learning and behavior that reflects defensive theories of action may help in preparing for change initiatives. The results of this study remind practitioners that one must expose values and align them with action, that is, align espoused theories with theories-in-use, in order to engage in democratic efforts of organizational change. There is much power in releasing identity in a way that creates truly democratic processes, yet as the data illustrate, there is a great deal of risk, as well.

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Women's Ways of Knowing: A Conceptual Framework for HRD Research

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The lower socioeconomic status of women (compared to men) has negatively impacted professional women. Human Resources Development researchers have not extensively explored gender issues from a feminist perspective. Incomplete research perpetuates the subordinate status of women who comprise a steadily increasing proportion of the workforce. This feminist essay seeks to expand the HRD literature by utilizing the Women's Ways of Knowing conceptual framework to analyze a study abroad experience.

Keywords: Women and Workforce, HRD and Feminism, Diversity

Human Resources Development (HRD) professionals develop and implement multifaceted programs related to individual, career and organizational development in the rapidly changing global workplace (Gilley & Eggland, 1989). However, few researchers have examined HRD knowledge construction, which provides the foundation for complex HRD programs. As the field of HRD emerges, Bierema and Cseh (2000) emphasize the importance of critically evaluating HRD research and issues not addressed by HRD researchers. They determined that research in the HRD discipline had not focused on prevalent workplace issues such as: "diversity, equality, power, discrimination, sexism, or racism (p. 141)." They also summarize research on women in the workplace and explain that "despite more equal opportunity, women are still segregated into typically "female" careers, and the wage gap persists (p. 141)."

Research has been conducted in areas related to gender differences and learning styles; however, there is debate surrounding the type and level of differences between men and women as learners (Fishback, 1999). A list of tips for teaching women was compiled by Fishback (1999) to merge andragogical theories related to both genders. The eleven tips provided by Fishback (1999) include a review of curriculum materials, design of critical thinking exercises, self-examination of gender beliefs, development of collaborative learning opportunities, and awareness of classroom race, class, and ethnicity issues. Hayes and Flannery (2000) indicate that gender differences related to learning have significant implications due to the notable increase of women in formal and informal educational programs. Hayes and Flannery (2000) also acknowledge theoretical differences between feminist scholars and identify the following five interrelated common themes of feminist theory: "how knowledge is constructed, voice, authority, identity as shifting, positionality, or dealing with differences based on the social structures of race, class, and sexuality (p. 157)."

Several researchers have addressed postmodernist, poststructuralist, and feminist perspectives of knowledge construction. Merriam and Caffarella (1999) explain that "postmodernism criticizes the modern conception of knowledge as a set of underlying principles that can explain behavior or phenomena across individuals or settings (p. 349)." Other researchers suggest that power relationships significantly influence knowledge construction and that "modernism privileges some ideas and people(s) and marginalizes others (Cunningham & Fitzgerald, 1996, p. 49). Women have traditionally held less powerful professional positions and a lower socioeconomic status than men have held. The subordinate status of women may have skewed the HRD research focus and knowledge construction toward men's issues and perspectives. Sociological issues were also emphasized by Cunningham and Fitzgerald (1996) in the following reference: "the goal of postmodernism is diversity/pluralism...how an individual or a community constructs knowledge and the type of knowledge constructed are socioculturally dependent (p. 49)."

Feminist researchers have also explored the area of knowledge construction. In *Women's Ways of Knowing (WWK)* Belenky, Clinchy, Goldberger, and Tarule (1986, 1997) conducted psychologically oriented feminist research while interviewing 135 women. They identified seven different *"Ways of Knowing"* and suggest that knowledge is individually constructed and can impact individual empowerment, individual voice, and personal change. The Belenky et al. (1986, 1997) conceptual framework provides the foundation for this essay.

Problem Statement

The HRD discipline has not conducted extensive research on issues related to diversity, sexism, and power relationships that are prevalent in the workplace (Bierema & Cseh, 2000). Failure to pursue these issues perpetuates the marginalization of groups, such as women, who lack power and status in the workplace. The purpose of this essay is to utilize the Belenky et al. (1986 & 1997) *WWK* conceptual framework for analyzing an HRD graduate study abroad experience to expand feminist research for the HRD discipline. The research question that provides the foundation for this essay is, "How can the *WWK* conceptual framework be used to make meaning of an HRD graduate study abroad experience?"

Conceptual Framework and Methodology

The purpose of this feminist essay is to apply the *WWK* conceptual framework to an HRD graduate study abroad experience to determine if *WWK* can be used effectively as a framework for HRD research. The conceptual framework for this paper is based upon research conducted by Belenky et al. (1986, 1997) that was published in *Women's Ways of Knowing* (*WWK*). The *WWK* authors interviewed 135 women and identified the following 7 *"Ways of Knowing:"* silence; received knowledge: listening to the voices of others; subjective knowledge: the inner voice; subjective knowledge: the quest for self; procedural knowledge: the voice of reason; procedural knowledge: separate and connected knowing; and constructed knowledge: integrating the voices. The *"Ways of Knowing"* will be referenced and linked to personal journal excerpts and other references to analyze the HRD graduate study abroad experience within the *WWK* conceptual framework.

Journal excerpts and lecture notes provide a personal perspective of a mid-career woman's study abroad experience. Fleming and McGinnis (1985) indicate that "journals, essays, and letters are not true autobiography, but they are rich resources to stimulate interest in a person's life, especially in regard to the lives of women...autobiography can offer people who might otherwise be excluded from the dominant culture a way to voice their experiences (p. xiv)." As Denzin and Lincoln noted (1998), "examining issues in equity, power, social structure, agency, self-definition, and their interrelations, so it is argued by feminists, will be enhanced by the writing of all kinds of personal narratives of all kinds of lives of all kinds of women (p. 210)." This essay explores a specific 3-week study abroad experience and does not attempt to reach results that are statistically generalizable. However, this essay raises issues related to international human resources development and women's studies that warrant further research.

Study Abroad Trip

Twenty-three graduate students and professors representing Northern Illinois University (NIU) participated in the 3-week study abroad trip during the summer of 2000. The group included 17 women and 6 men from a diverse group of professions, including: higher education, state and federal government, real estate, health care, military, law enforcement, civil engineering, and human resources. Many participants held mid-level to top-level management positions in their respective organizations. The NIU group met with scholars and business leaders to share information related to current trends in HRD, education, and research in Finland, Russia, Estonia, and The Netherlands. The two-way discussions provided numerous opportunities to compare and contrast North American strategies with European strategies, which provided students and professors valuable insights related to the field of human resources development. The participants also maintained daily journals that described, analyzed and integrated academic, professional, and personal aspects of the study abroad experience.

All NIU participants attended a 2-day professional conference entitled, *"Adult Learning in the New Millennium,"* in Lahti, Finland. The conference was cosponsored by the University of Helsinki and Northern Illinois University. Many scholars and graduate students from Finnish universities, polytechnics and corporations attended the conference. Participants delivered presentations related to a wide variety of international HRD, adult and continuing education research and programs. In addition, several participants arranged to conduct joint research projects with colleagues from other countries.

The author, a 39-year-old female with 17 years of experience in the field of human resources, will use personal journal excerpts, lecture notes, and other references in conjunction with the *WWK* conceptual framework to analyze the 3-week study abroad experience.

Data Analysis and Discussion

The following section addresses the research question, "How can the *WWK* conceptual framework be used to make meaning of an HRD graduate study abroad experience?" Conclusions are based upon a conceptual and qualitative data analysis.

The author will address the research question by categorizing personal journal excerpts according to *"Ways of Knowing"* identified by Belenky et al. (1986, 1997). The *"Ways of Knowing"* and journal information will be linked to study abroad information, human resources skills, and literature to complete the analysis. Notes: *"Ways of Knowing"* are italicized after the journal excerpts throughout the paper; the *"silence" and "quest for self" WWK* were not identified during the analysis of the author's journal.

Journal Excerpts

1. "Partnerships are critical to success worldwide. As technology links the world, we also have to remember to maintain relationships with the people who live and work in locations close to us." *(Constructed Knowledge: Integrating the Voices).*
2. "I am a little apprehensive about the experience but look forward to the learning opportunity. I have overcome the fear by analyzing the features of the culture that I have seen so far. I have come to the conclusion that...people are similar across cultures." *(Subjective Knowledge: The Inner Voice).*
3. "We discussed diversity on the level of different philosophical orientations and work practices. We discussed...using the differences as assets." *(Procedural Knowledge: Separate and Connected Knowing).*
4. "The speaker presented excellent models for program planning...I will use the models to plan my projects." *(Received Knowledge: Listening to the Voices of Others).*
5. "It was evident that people conducting cross-cultural training need to be extremely sensitive and aware of the customs of all cultures receiving training. Therefore, pre-training research is critical." *(Procedural Knowledge: The Voice of Reason).*

The journal excerpts demonstrate that the mid-career woman gained knowledge of international human resources, partnerships, diversity and cross-cultural relationships during the study abroad trip. Various levels of *"Ways of Knowing"* were connected with the journal excerpts, which may be attributed to the different levels of knowledge and professional experience the student has in areas related to the various learning experiences.

Issues related to partnerships and technology (1) were primarily connected with the *"Constructed Knowledge: Integrating the Voices"* level that is used when a person "views knowledge as contextual, experience themselves as creators of knowledge, and value both subjective and objective strategies for knowing (p. 15) (Belenky et al., 1986 & 1997)." The *"Constructed Knowledge"* level may be attributed to the student's extensive professional experience in the area of HRD partnerships and understanding of technology issues.

The journal excerpt related to sensitive issues (2) was linked to the *"Subjective Knowledge: The Inner Voice"* level of knowing, which is "a perspective from which truth and knowledge are conceived of as personal, private, and subjectively known or intuited. (p. 15). Due to the sensitive, personal nature of the issues, the student felt most comfortable relying on intuition exemplified by the *"Subjective Knowledge"* level.

The journal excerpt related to viewing diversity in a different manner (3) was associated with the *"Procedural Knowledge: Separate and Connected Knowing"* level identified by Belenky et al. (1997). Analyzing the different perspective of diversity required the student to review her personal perspective of diversity and consider the other scholar's perspective. The student then analyzed the two perspectives, which exemplifies the *"Separate and Connected Knowing"* level.

Analysis of new HRD program knowledge gained by the mid-career woman during the study abroad experience indicates that the student considered new information (4) from a *"Received Knowledge: Listening to the Voices of Others"* level. Belenky et al. (1997) concluded that women using the *"Received Knowledge Way of Knowing"* perceive themselves as receiving information from external authorities.

Information related to cross-cultural issues (5) was linked with the *"Procedural Knowledge: The Voice of Reason"* level. The author has some experience with cross-cultural issues and was interested in "learning and applying objective procedures for obtaining and communicating knowledge," which is typical of the *"Procedural Knowledge"* level (Belenky et al., 1997).

The analysis of journal excerpts using the *WWK* conceptual framework indicates that experience and education can move a person to the integration level of making meaning, which involves creation of knowledge, as well as, subjective and objective *"Ways of Knowing."* Integration involves linking multiple sources of information to comprehend complex situations that are common in multinational work environments. The journal excerpts

indicate that the student reflected on HRD issues, including the topic of diversity, and determined that significant value could be obtained through cross-cultural training and partnerships. The student also learned that analysis of cultural data can eliminate preconceived fears that may have been based upon stereotypes rather than factual data about a specific culture. The knowledge of diversity would be a significant asset for a human resources professional responsible for maximizing employee and organizational effectiveness in the global workplace.

Overall, the analysis indicates that different *"Ways of Knowing"* were used to handle different issues. The student's level of experience and nature of the issue impacted the *"Way of Knowing"* used in different situations. The ability to use different strategies to make meaning of issues can be viewed as a type of diversity that can provide a person a variety of problem solving strategies. A repertoire of problem solving strategies increases a person's ability to handle rapidly changing business environments because alternatives are available when a preferred strategy is deemed ineffective and no historical information is available to provide guidance since the business challenge is new.

Several researchers emphasize the critical nature of diverse methods of knowledge construction and problem solving to address the requirements of the dynamic global workplace. As organization structures flatten, Semler (1997) indicates: "organizations will continue to expect employees to shoulder a greater share of knowledge-based responsibility ...employees receive a greater voice in the decisions that affect their economic and emotional lives (pp. 596-597)." Kauppi (1998) emphasized the importance of "transformation of practices...and developing collectively new approaches" of applying knowledge and competencies to new situations (p. 77)." Kauppi's perspective suggests that alternative methods are required to address challenges encountered in rapidly changing technological business environments. Kolb (1998) also emphasizes the critical nature of diversity in the context of learning: "If you are talking about learning it seems to me that diversity is essential for learning. If everything is the same then how do we discover anything new (p. 153)?"

The *WWK* conceptual framework can be used to provide a new method of constructing knowledge in the HRD discipline. Application of the WWK conceptual framework to HRD research will strengthen the HRD literature by addressing gender, power, and sexism issues that have not been extensively researched.

Limitations

Limitations of this essay relate to the scope of the project, limited number of the participants, and criticisms of the conceptual framework. This essay focuses on a specific 3-week HRD graduate study abroad experience and focuses on journal excerpts from one graduate student, which limits the scope and application of the data. In addition, the *WWK* has been criticized as a model that focused on white women (Merriam & Caffarella, 1999). No attempt is made to generalize findings from this essay to a wider audience. However, the essay raises important issues related to HRD and women's issues that could serve as the basis for future research. The limitations could be addressed when the *WWK* conceptual framework is utilized in other feminist HRD research projects.

How this Research Contributes to HRD Field and Implications for Future Research

This feminist essay utilizes a conceptual framework related to *"Women's Ways of Knowing"* (Belenky et al., 1986, 1997) to analyze an HRD graduate study abroad experience. This essay demonstrates that the *WWK* conceptual framework can be effectively applied to make meaning of an HRD graduate study abroad experience. The unique data analysis provides a conceptual framework that may be considered as a foundation for other feminist HRD research.

HRD practitioners can use the *WWK* conceptual framework as a guide for professional development programs. Utilizing the "Ways of Knowing" conceptual framework can assist HRD practitioners with addressing the needs of employees using the various *"Ways of Knowing"* for constructing professional knowledge. Consequently, the effectiveness of HRD professional development programs could be enhanced by application of the *WWK* framework.

Application of new conceptual frameworks can contribute to the breadth of HRD research. The *WWK* conceptual framework could be applied to expand research on the "knowledge-based responsibilities" and "voice" issues addressed by Semler (1997). The *WWK* conceptual framework (Belenky et al., 1986, 1997) could also be linked with Fishback's (1999) tips for teaching to enhance curriculum materials, to develop collaborative learning opportunities, and to raise awareness of gender issues in HRD. The *WWK* conceptual framework could also be applied to expand HRD literature by addressing areas such as diversity, sexism, and power relationships that have not been extensively researched in the field of HRD (Bierema & Cseh, 2000).

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A Critical Review of Research and Statistical Methodologies Within *Human Resource Development Quarterly*, *Academy of Management Journal*, and *Personnel Psychology*, 1995-1999

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Articles in Human Resource Development Quarterly, Academy of Management Journal *and* Personnel Psychology *were reviewed for 1995-1999, and 1975-1979 for the* Academy of Management Journal, *to determine the most used research methods, trends in 1995-1999, to compare methodologies between HRDQ 1995-1999 and AMJ 1975-1979, to provide a description of recent HRD research, and to determine if HRD as discipline is at a similar developmental point as the management discipline was during 1975-1979.*

Key words: HRD Research, Journal Publication, Discipline Development

As HRD moves through the developmental stages of a discipline, i.e. from attempting to define itself, to establishing its theory base, to evaluating its theory base and reaching out to new uncovered territory; it is not only important, but necessary to review the research produced by the discipline, since it is that research which is evaluated as to the value contributed by that discipline. All researchers have a primary task which is to produce research which contributes to their discipline and all researchers have the responsibility to do so in a manner which utilizes the most appropriate methodologies to answer their research questions. Therefore, it is necessary to determine the methodologies researchers in HRD are utilizing and compare these methodologies to closely related but further developed disciplines to assure HRD researchers are utilizing similar types of methodologies to answer similar types of research questions.

Due to a major concentration of HRD research being the desire to increase performance, whether that be of systems or processes or individuals, and the desire of management and industrial organizational psychology to also improve performance, the three disciplines address similar research questions, although from different angles. Therefore, it is appropriate to select a major journal from each area and compare methodologies. This comparison will provide a description of recent HRD research and allow the determination of the point along a developmental continuum which HRD sits and also will allow one to determine how HRD researchers compare to management and I/O psych researchers as far as choice of methodologies, guiding the possible future consideration of and utilization of methodologies which may not be utilized at this point, but would be appropriate to apply in future research efforts to produce more viable research.

Therefore, this research effort set out to conduct a review of research and statistical methodologies for the time period of 1995-1999 for the journals *Academy of Management Journal (AMJ)*, *Personnel Psychology (PP)*, and *Human Resource Development Quarterly (HRDQ)* to provide a description of recent HRD research, determine similarities and differences between types of methodologies reported in the selected journals. And to determine if the discipline of human resource development is at a similar developmental point as the management discipline during the 1975-1979 time period when it reached its twenty-year anniversary. To accomplish these objectives, this study identified the most frequently used methodologies in these journals, identified differences between total methodologies reported by journal and by year, and compared the human resource development and management disciplines.

Previous Research

Previous research including surveys, content analyses and reviews of research and statistical methodologies are sparsely dispersed throughout the organizational research literature (Podsakoff & Dalton, 1987). Multiple searches of various psychology, business and education databases led to only a select few studies which reviewed the research and or statistical methodologies reported by journals within these fields.

Podsakoff and Dalton (1987) reviewed the 1985 volumes of the *AMJ, Administrative Science Quarterly, Journal of Applied Psychology, Journal of Management*, and *Organizational Behavior and Human Decision Processes*. Within their study, they identify only seven past studies which have recently attempted to examine various aspects of research practices of organizational scientists further demonstrating the lack of research in this area.

Similar research efforts within the educational field have also been conducted and were used as guides for the development of this study due to the deficient nature of the type of research in the organizational sciences. For example, Elmore and Woehlke (1998), Elmore and Woehlke (1988), Goodwin and Goodwin (1985) and Emmons, Stallings and Layne (1990) conducted reviews of statistical and research methods found within top journals within their fields.

Methodology

The discipline of HRD has made many advances since its birth approximately twenty years ago (Holton, 1990). To aid in the determination of methodologies of the HRD discipline and the comparison between this and closely related disciplines, previous research by Coe and Weinstock (1984), Sleezer and Sleezer (1997), and Hixon and McClernon (1999) was consulted to determine journals to utilize in this effort. This research ranked the chosen journals as the leading journals within their fields. The journals chosen include *Human Resource Development Quarterly* (*HRDQ*), *Academy of Management Journal* (*AMJ*) and *Personnel Psychology* (*PP*). In addition to the sited research, each journal places an emphasis on empirical research, contains a variety of statistical methodologies, is published by leading organizations and demands high standards of their contributors.

A five-year span (1995-1999) was chosen to allow the determination of the most frequently used methodologies in the selected journals. This five year period in particular was chosen to allow a current assessment of the state of research in these areas. The researcher also desired to attempt to determine at what point along a research continuum the discipline of human resource development teeters. To determine this, the 1995-1999 articles within *HRDQ* were compared to the 1975-1979 articles within *AMJ*. The discipline of management was chosen for this task because its development as a discipline has been well documented (Holton, 1990). The 1975-1979 time period was chosen because the discipline of management was approximately twenty years old during that time period, therefore it was felt that similar methodologies would appear between the two journals if the two disciplines were at a similar developmental point.

Book reviews, research notes and research forums were not included in this effort. All articles were included except for those conducted using students or the general population as the primary source of data because the researcher was interested in actual research efforts being conducted or proposed within organizations. Over all journals for the years 1995-1999, there was a total of 348 articles reviewed of which 50 used students as their primary source of data and 2 used the general population; therefore, data tables will report a total frequency of 296 articles used for the period of 1995-99. There were a total of 203 articles for the time period of 1975-1979 with 39 using students as the primary source of data resulting in data tables reporting a frequency of 164 articles used.

In order to collect the data, the researcher reviewed the abstract, methods and results sections of each article coding every mentioned statistical and research methodology. Methodologies were then separated into those which aided in the establishment of the study (e.g. reliability testing) and those which were administered to test research hypotheses. Only those methodologies used to test research hypotheses will be reported in the tables which will follow. Many articles reported using more than one technique to measure a similar thing (e.g. an article may have used coefficient alpha and Cronbach's alpha to both measure reliability), therefore both were reported. Methodologies were reported both if they were mentioned in the text and if they were only presented in a table or graph.

Once the methodologies were coded, they were grouped into major categories using Elmore and Woehlke (1988), Elmore and Woehlke (1998), Emmons, Stallings and Layne (1990), Ford, MacCallum and Tait (1986), Goodwin and Goodwin (1985), and Podsakoff and Dalton (1987) as a guide. This grouping resulted in 27 statistical methodology categories and various other related categories.

Reliability has often been reported as a problem in this type of study (Emmons et al., 1990). To check for errors in coding the data and increase reliability as much as possible, all 1999 articles for each journal were reviewed a second time, and a sample of one article per issue of *HRDQ* 1995-1998 were reviewed since these were the first articles coded. There were three errors found - a chi square measure of fit indices was miscoded as a chi square test, and graphical representations and measure of fit indices were not coded for in this initially. All articles where chi square appeared to be coded for were reviewed again and any other corrections were made as needed.

Once all coding and corrections were complete, frequencies were computed by journal for all years, by year for all journals, and by journal by year. Frequency tables were then completed and evaluated to determine most frequently used methods, to search for major changes, and to compare *HRDQ* 1995-1999 and *AMJ* 1975-1979.

Table 1. Methods Used in All Journals

Method/Description	1995 (n=67)	1996 (n=69)	1997 (n=60)	1998 (n=58)	1999 (n=56)	Total (n=296)
Regression - Bivariate, linear, simple, hierarchial, moderated	21	27	14	20	29	111
Bivariate correlation - Pearson and other correlations between two variables	15	28	11	11	14	79
Graphics - Plots, graphs, scatterplots, charts	7	18	6	11	12	54
Multiple/multivariate regression	9	8	6	12	8	43
ANOVA (analysis of variance)	14	6	7	7	4	38
Intercorrelations	6	8	8	7	4	33
t-test	10	8	4	3	6	31
Various measures, criteria and scales	6	7	8	5	5	31
Qualitative methods	8	4	6	6	6	30
Least-squares regression	8	7	5	3	7	30
Various test statistics other than t-tests	11	6	2	2	7	28
Correlation - Multiple, cross-lagged, partial correlations	12	4	1	5	5	27
SEM (structural equation modeling)	7	3	6	8	3	27
Meta-analysis	7	1	4	1	4	17
Logit or probit regression	0	3	7	3	4	17
MANOVA (multivariate analysis of variance)	8	2	2	2	3	17
Chi Square test	5	3	5	3	0	16
Other analysis reported only sparsely	0	3	2	0	5	10
Post hoc comparisons	2	1	1	2	3	9
CFA (confirmatory factor analysis)	3	2	1	2	0	8
Cluster analysis	5	2	0	0	1	8
Event history studies	0	1	2	3	1	7
Transformation	1	3	0	0	3	7
EFA (exploratory factor analysis)	0	1	2	1	3	7
Time series tests	0	2	1	0	3	6
Non-parametric techniques	3	0	0	1	1	5
ANCOVA (analysis of covariance)	0	1	2	0	1	4
WABA (within and between analysis)	0	0	1	1	1	3
MANCOVA (multivariate analysis of covariance)	0	0	2	0	1	3
PCA (principle components analysis)	1	2	0	0	0	3
Canonical correlation	1	0	0	1	1	3
MDS (multi-dimensional scaling)	0	1	0	0	0	1
Discriminant analysis	0	0	0	0	1	1
Distance analysis	0	0	0	1	0	1
Probability	1	0	0	0	0	1

Findings

Methods reported within all three journals for years 1995-1999 are represented in Table 1. The ten most frequently used methods across all three journals in rank order are regression, bivariate correlation, graphics, multiple regression, ANOVA, intercorrelations, t-test, various measures, qualitative methods, and least-squares regression. Also, across all journals for the years 1995-1999, 218 of the 296 articles reported some type of descriptive statistic. Descriptive statistics were not considered here as a statistical methodology, but as a reporting technique. Articles which are completely

descriptive in nature are reported as descriptive research.

Reviewing this literature revealed numerous interesting findings overall. To begin with, the most frequently used rotation types used with various types of factor analysis, SEM, and related procedures were reported as (in rank order) oblique, orthogonal and direct oblimin.

A second finding was the large variety of data types reported within these studies across all journals for the five-year period. The most frequently used data collection types in rank order are survey, archival, longitudinal, extant and interview. As a note, archival data was coded as any type of information gained from archives within the organization (e.g. performance reports), extant was any type of information which was gained from outside the organization (e.g. newspapers, government reports), and longitudinal data was any type of data collected over a period of time not specifically reported as time-series data. The total number of types of data used is greater than 296 because many studies used more than one type of data.

A third finding consists of the types of research designs reported across all journals over the five-year period. The main types of designs reported in rank order are descriptive, qualitative, review of literature, repeated measures, and quasi-experimental. A final interesting finding is the reporting of fit indices used in SEM, various types of factor analysis and similar procedures. The most frequently reported measures of fit in rank order are chi square fit index, goodness of fit index, comparative fit index, normed fit index, root mean square error of approximation and root mean square residual.

Methodologies were also calculated within each journal over the five-year period. Methods used in *HRDQ* from 1995-1999 were reported to include ten most frequently used methods across all five years in rank order of t-test, qualitative methods, regression, ANOVA, bivariate correlations, various statistics, graphics, multiple regression, various measures, and exploratory factor analysis. For *PP* from 1995-1999, the ten most frequently used methods over these five years in rank order are regression, intercorrelation, multiple regression, ANOVA, bivariate correlation, structural equation modeling, correlation, various measures, graphics, and various statistics. Lastly, for *AMJ* from 1995-1999, the ten most frequently used methods reported in rank order include regression, bivariate correlation, graphics, least squares regression, multiple regression, various measures, logit regression, qualitative methods, MANOVA, and various statistics.

Table 2. Results of ANOVA by Year

Method	P-value	Tukey post hoc comparison
Bivariate correlation	0.004	*HRDQ* significantly lower than *AMJ*; *PP* significantly lower than *AMJ*
Regression	0.020	*HRDQ* significantly lower than *AMJ*
Graphics	0.020	*HRDQ* significantly lower than *AMJ*; *PP* significantly lower than *AMJ*
t-test	0.005	*PP* significantly lower than *HRDQ*; *AMJ* significantly lower than *HRDQ*
Multiple regression	0.025	*HRDQ* significantly lower than *PP*
Intercorrelation	0.000	*HRDQ* significantly lower than *PP*; *AMJ* significantly lower than *PP*
Qualitative methods	0.022	*PP* significantly lower than *HRDQ*
SEM	0.002	*HRDQ* significantly lower than *PP*
Least square regression	0.013	*HRDQ* significantly lower than *PP*; *AMJ* significantly lower than *PP*
Logit regression	0.014	*HRDQ* significantly lower than *AMJ*
Event history	0.006	*HRDQ* significantly lower than *AMJ*; *PP* significantly lower than *AMJ*

To determine if the methodologies differ by journal, the total frequency of each methodology of each journal was changed to a percentage, followed by the administration of an ANOVA by journal type. This procedure produced several significant differences. The methods of bivariate correlation, regression, graphics, t-test, multiple regression,

intercorrelation, qualitative methods, SEM, least square regression, and event history showed significant differences. Table 2 contains the specific p-values and Tukey post hoc differences.

Also, an ANOVA by year was performed on this data set to determine if significant differences between each year of all journals combined for that year were present. Only two methods produced significant differences. MANOVA possessed a p-value of 0.017 with Tukey post hoc differences present between 1995/1996, 1995/1997, and 1995/1998. Within these comparisons, 1995 demonstrated the highest use of MANOVA. The second method which produced a significant difference was other analyses possessing a p-value of 0.030 with Tukey post hoc differences between 1995/1999 and between 1998/1999. Within these comparisons, 1995 and 1998 are the years which have lower representations for this method.

To address the issue concerning that as a discipline, human resource development is approximately at the same point along a developmental continuum as management as a discipline was in the late 1970's, Table 3 can be reviewed. It was desired to administer a chi square test to this data table to determine if statistically significant differences were present between any of the methodologies for these totals of each journal, however, as was the case earlier, more than twenty percent of the categories had expected cell frequencies less than five. Therefore, only large differences in percentage points will be pointed out.

Following the above rationale, when viewing Table 3, it is evident that large differences exist for the following methodologies: correlation, qualitative methodologies, various statistics, bivariate correlation, and intercorrelation. *HRDQ* 1995-1999 reports a higher rate of use of qualitative methods, while *AMJ* 1975-1979 reports a higher rate of use of correlation, various statistics, bivariate correlation and intercorrelation methods. It should also be noted here that *HRDQ* 1995-1999 reported a much higher number of descriptive type studies than did *AMJ* 1975-1979 (this is not found in the table).

Table 3. Comparison Between *HRDQ* 1995-99 and *AMJ* 1975-79

Method	*HRDQ* 1995-99 (n=57)		*AMJ* 1975-79 (n=164)	
	Frequency	Percent	Frequency	Percent
Regression	12	21.0	41	25.0
Correlation	1	1.7	41	25.0
ANOVA	9	15.7	31	18.9
Cluster analysis	2	3.5	0	0
T-test	13	22.8	16	9.76
Time series tests	1	1.7	0	0
Qualitative methods	12	21.0	8	4.88
Discriminant anal.	0	0	8	4.9
Transformation	0	0	2	1.22
Non-parametric	0	0	6	3.66
Post hoc	2	3.5	2	1.2
Chi square	2	3.5	16	9.76
Graphics	5	8.8	9	5.49
Various stats.	5	8.8	38	23.2
Measures	3	5.3	11	6.71
Other anal.	2	3.5	3	1.8
MDS	0	0	1	0.6
Multiple reg.	4	7.0	17	10.4
Probability	0	0	1	0.6
Meta-anal.	0	0	0	0
ANCOVA	1	1.7	8	4.9
MANOVA	2	3.5	3	1.8
MANCOVA	1	1.7	0	0
CFA	1	1.7	8	4.9
SEM	0	0	10	6.1

	HRDQ 1995-99 (n=57)		*AMJ* 1975-79 (n=164)	
EFA	3	5.3	0	0
PCA	1	1.7	14	8.54
Least-squares reg.	2	3.5	1	0.6
Logit	0	0	0	0
Canonical corr.	0	0	8	4.9
Bivariate corr.	7	12.3	41	25.0
Intercorrelations	2	3.5	24	14.63
WABA	0	0	0	0
Event history	0	0	0	0
Distance anal.	0	0	0	0

Discussion

This research effort set out to provide a description of recent HRD research, determine similarities and differences between types of methodologies reported in the selected journals, and to determine if the discipline of human resource development is at a similar developmental point as the management discipline during the 1975-1979 time period when it reached its twenty year anniversary.

Utilizing descriptors established by Goodwin and Goodwin (1985) - basic, intermediate, advanced and other - and the results from this study, HRD methodologies can be described as intermediate in nature with some use of basic and a slight use of advanced methodologies. This does not say that HRD research is lacking in any area, only that a use of more complex techniques such as factor analysis or path analysis are not being utilized to as large of a degree as such techniques as ANOVA and regression are utilized. The appropriateness of a technique should be evaluated by situation, but at all times, HRD researchers should ensure they consider all methodology options and select the most appropriate, and not the most convenient to allow for the production of better research.

The determination of the existence of several significant differences by journal, demonstrates that within the selected journals, HRD researchers are producing research utilizing more basic techniques than management and industrial organizational psychology researchers. Also, management and industrial organizational psychology researchers, while utilizing similar methods in general terms are using methods which have become discipline specific. For example, management's utilization of event history methodologies and logit regression; while industrial organizational psychology's use of least squares regression and structural equation modeling methodologies are found predominately within these disciplines. These findings demonstrate that although methodologies may often be discipline specific, their utilization by numerous researchers provides some evidence that we live and operate in a multivariate world filled with mediators, moderators and non-normal distributions and that we should consider that fact and look beyond finding a simple description toward finding and explaining relationships and connections between relationships.

While attempting to determine if the discipline of human resource development is at a similar developmental point as the management discipline during the 1975-1979 time period when it reached its twenty year anniversary, only six differences were reported (correlation, qualitative methods, various statistics, descriptive research, bivariate correlation, and intercorrelation). This, along with the other finding of this effort, lead to a discussion that the discipline of human resource development continues to establish its theory base, therefore, the research methodologies which its researchers are applying within its empirical studies leaves the discipline close to the point in its development that the discipline of management was twenty years ago along a developmental continuum. This is by no means stating that human resource development is behind management as a discipline, only that it is in a younger stage than management as a discipline is, and this is evident in the methodologies within journal publications selected for this study.

HRD researchers should focus on moving the discipline forward, i.e. move toward testing present theoretical propositions, taxonomies and models to further develop the discipline, increase the amount of empirical research produced, and the variety of methodologies utilized. HRD researchers should strive to possess a complete understanding of both the statistical methodologies and statistical packages they are implementing in order to increase their contribution to the discipline at hand. Researchers should review previous related content literature and statistical literature when designing a study and apply the most appropriate techniques for analyzing data and cross disciplines to provide the most complete and accurate picture of the situation at hand, and review research produced in other disciplines to assure the proper selection of methodologies to increase the viability of research produced within this discipline.

Once again, studies within the HRD discipline, and within all disciplines discussed here should include multiple techniques, multiple independent and dependent variables, correlational techniques and causal models when appropriate to assure the research effort exist in as complete a state as possible. In other words, to increase contribution, one should search for the best method, apply it properly, and report it clearly.

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