

## Improving Performance through HRD: Towards a Multi Level Model

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*This study among 44 companies explores whether strategic HRD alignment and some organization and HRD related factors exert influence on the effects of HRD interventions. A multilevel analysis showed that strategic alignment, the problem that serves as starting point for HRD, the company HRD climate, the position of the HRD department, and the form of HRD interventions are important factors in impeding or enhancing HRD performance or effectiveness. Based on the results a multi-level model of HRD performance was developed.*

**Key words:** HRD effectiveness, Drivers and outcomes, Multi-level model

### Problem Statement and Research Question

Human resource development (HRD) in organizations could basically have the form of formal courses and off the job learning interventions, or consists of more informal learning and development taking place in teams and on the job. Ideally, in both cases the ultimate outcome of HRD is performance improvement. HRD has always had a continuing fascination with means versus ends (Swanson, 2000). However, only few research has examined this relationship and tried to determine a causal relationship between HRD and performance improvement (e.g. Ellinger, Ellinger, Yang, and Howton, 2000; Van der Klink, 1999; Hoekstra, 1999). Therefore, the purpose of this study was to empirically address this means-ends relationship. The research question is then, what factors will have an impact on the successful attainment of HRD goals and objectives. This question is the more important because in literature is estimated that only between 10 and 20 percent of capital invested in HRD and other learning interventions will lead to enduring performance improvement (Baldwin & Ford, 1988; Broad & Newstrom, 1992).

### Performance Improvement: Some Theoretical Foundations

The research question fits within the performance paradigm of HRD. According to Weinberger (1998) this paradigm holds that the purpose of HRD is to advance the mission of the organizational system. HRD efforts have to improve the capabilities of individual working in the organization and the organizational systems in which they perform their work. The primary outcome of HRD in this context is not just learning, but also performance at various levels (Holton, 2000). Kaplan and Norton (1996) suggest two categories of performance measures: the so-called drivers and outcomes. Outcomes measure the effectiveness or efficiency relative to core outputs of the system, sub-system, process or individual, whereas drivers measure elements of performance that are expected to sustain or increase system, sub-system, process, or individual ability and capacity to be unique for particular performance systems (Holton, 2000). Together, these drivers and outcomes describe the cause and effect relationships in organizations (Kaplan & Norton, 1996), which implies that drivers should predict future outcomes.

Their theory fits well into the theory of HRD effectiveness, where HRD effectiveness is conceived as the extent to which HRD goals and objectives are achieved. (Wognum, 1999). Following the school-effectiveness theory (Scheerens & Bosker, 1997) this theory points as well to a means-goals ordaining between the ultimate criteria and the supportive, effectiveness enhancing criteria. The HRD effects can then be seen as ultimate criteria of HRD effectiveness, like Kaplan and Norton's output measures. Criteria, such as the HRD process itself, resource acquisition, adaptability to the environment, or the ability, satisfaction and motivation of employees, are seen as effectiveness enhancing criteria (Scheerens & Bosker, 1997; Wognum, 1999), just like Kaplan and Norton's performance drivers. Gaining insight into these criteria is necessary, as a means of interpreting the effects of HRD.

### Multi-leveled Performance Outcomes

As mentioned before, the primary outcome of HRD is not just learning, but also performance at various levels (Holton, 2000). By acknowledging that Kirkpatrick's reaction level (Kirkpatrick, 1976) is a performance enhancing

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criterion, many authors at least discern the learning (effects on knowledge, skills and attitudes), behavior (effects on working behavior of individual employees), and results levels (effects on the performance results of individuals, groups, departments or the company) (Wognum, 1999). These multi-leveled outcomes fit within the multi-level theory, which, according to Klein, Tosi & Cannella (1999) integrates the micro domain's focus on individuals and groups with the macro domain's focus on organizations, environment and strategy. This will result in a better understanding of the influence of individuals on the organization and, vice versa, the organizational influence on individuals' actions and perceptions.

## Factors Impeding or Enhancing HRD Performance or Effectiveness

### *Strategic HRD Alignment*

In organizational effectiveness thinking, goals can be seen as the major defining characteristics of the effectiveness concept itself (Scheerens & Bosker, 1997). HRD goals will be developed during a strategic planning or decision-making process. In both processes systematically considered decisions are made on actions and resources to accomplish HRD goals, within certain environmental circumstances. Hannigan c.s. (2000) state that new research is needed that takes a more exploratory look at the decision process that managers use to make decisions about training. The traditional view on strategic planning, holding in general that strategic plans have been developed by a planning staff at top management level, has some shortcomings (Mintzberg, 1994; Galagan, 1997). It, for instance, can destroy commitment. A more recent view on strategic planning for HRD includes the participation of all relevant stakeholders. It holds that strategic HRD planning - or strategic HRD alignment - is a dynamic and interactive process in which, as part of an ongoing and future company policy, HRD goals and objectives are formulated concerning employees' and company development (Wognum, 1999). The word 'strategic' emphasizes the company perspective and connects the link between HRD and the organizational goals and objectives. Strategic HRD alignment will then result in HRD programs or other, more informal, learning interventions that are closely linked to the company's situation. Based on policymaking models and on features of decision-making models, the process of strategic HRD alignment is characterized by four aspects: participation, information, formalization, and decision-making. *Participation* means the involvement of participants at the various organization levels in the alignment process. *Information* refers to the data needed to gain more insight in those company's situations which may call for HRD interventions. *Formalization* refers to the more or less formal consultative structures and information gathering procedures in the alignment process. *Decision-making* is concerned with the strategic choices of the alignment process, mainly the choice for HRD goals and objectives the HRD programs are intended to. By paying attention to these four aspects HRD alignment will enhance HRD effectiveness.

### *Contextual Factors*

Following the multi-level approach, described above, it may become clear that the context of a specific organization will have an impact on the achieving of HRD performance or effectiveness, because HRD is a process and a system within a larger organizational and macro-environmental system (Tjepkema & Wognum, 1999; Swanson, 2000). It is often assumed that there is a close link between characteristics of this context and the way in which organizational processes evolve. Deviating from an appropriate model, contingency theorists maintain, creates a lower degree of organizational effectiveness (Khandwalla, 1977; Van de Ven & Drazin, 1985). From this perspective, HRD interventions will probably be less effective if HRD structures and processes do not match their contextual conditions. Therefore, the only way to assess the effectiveness of HRD interventions is to include the interaction with key components of the organizational system (Hannigan, Donovan, Holton c.s., 2000).

Literature indicates a number of contextual characteristics exerting influence on organizational effectiveness (Wognum, 1999). Considering the HRD perspective, those characteristics refer to the HRD function, which is usually shaped into an HRD department, as well as to the company in which the HRD function is embedded (Mintzberg, 1983; Tjepkema & Wognum, 1999). Macro-environment characteristics will usually be reflected in the kind of problems or developments with which the company is faced. Therefore, macro-environment characteristics act more indirectly by considering the problem that serves as a starting point for HRD interventions. This problem can be conceived as a characteristic of the company.

The connection between these types of elements and the outputs/outcomes of HRD is visualized in the research model depicted in Figure 1.

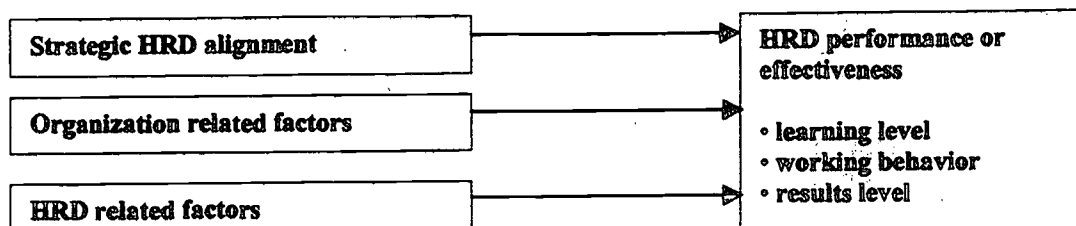


Figure 1. Research Model

As mentioned before, strategic HRD alignment is characterized by participation, information, formalization, and decision-making. According to literature (among others: Wognum, 1998; Wexley and Latham, 1991), organization-related factors that are supposed to have an impact on HRD effectiveness are, among others, the size and structure of the company, its HRD climate, the economic sector the company belongs to, and the degree of company's innovation. The structure and position of the HRD department, the degree of innovation, and the form the HRD program takes, and also transfer conditions are characteristics of the HRD function expected to influence HRD effectiveness (e.g. London, 1989; Mintzberg, 1983). Such problems serve as starting points for HRD interventions (Wognum, 1999).

### Method

This paper is based on data derived from a survey among Dutch companies. These companies were selected from a national database from the Association of Chambers of Commerce.

### Sample

Two organization related contextual factors were used as selection criteria: the size of the company, and the economic sector to which the company belongs. Following these criteria, 44 companies with more than 500 employees were selected from the aforementioned database: 11 from the industrial sector and 33 from the financial and commercial services sector. A non-response analysis showed no significant differences between the non-response group and the 44 companies in the study, concerning such contextual variables as size and structure of the company and structure and position of the HRD function. In each company one HRD program was selected (from the two frequently recurring fields of automation and social skills). This resulted in 23 selecting automation and 21 social skills programs. In order to define the effectiveness of the selected HRD programs, four categories of respondents within the company were selected: the HRD company representative, a maximum of 15 HRD participants, their supervising manager and (if present) their subordinates. All groups can be considered as having an interest in the results of the HRD programs (so-called stakeholders).

### Data Collection

Data were collected in 1997, using four comparable questionnaires sent to 767 representatives of the four groups of stakeholders (44 HRD company representatives, 357 HRD participants, 242 of their supervising managers, and 124 of their subordinates). The questionnaires were designed to collect information on variables derived from the aforementioned theoretical framework. They comprised groups of questions and statements. Statements focused on respondents' opinions on the strategic HRD alignment process (22 in total: five on participation, five on information, five on the formal nature, and seven on the decision-making process) and perceived effectiveness (9 statements).

Additional questions in the questionnaire for HRD company representatives concerned the organization and HRD related factors. These included questions on the kind of problem that was a starting point for HRD (divided into three categories: to resolve a problem concerning employee, department or company performance; to improve certain working practices; or to change or renew the company situation), on the structure of the company and HRD function, on important innovations occurring since 1990 within the company as well as in the HRD function, on the design of the selected program, and on conditions made for transferring of the learning results into working practice. The questions had both pre-coded and open answers. Twelve statements focused on company HRD climate and comprised, among others, statements on a respondent's perception of management attitude towards training. These statements also had answers on a five-point scale.

In order to compare the effects of the 44 HRD programs, the effectiveness as perceived by respondents was the object of study. This is based on the assumption that the importance given to effectiveness later is every bit as important as actual HRD effectiveness (Ford & Noe, 1987). Emphasis on perceptions is also allowed by the multilevel theory mentioned before, indicating that the combined micro and macro domain's focus will result in a better understanding of the organizational influence on individuals' actions and perceptions (Klein, Tosi & Cannella, 1999). Statements had answers on a 5-point scale, running from 1 (totally disagree/not at all) to 5 (totally agree, completely) and a possible 6 score (for unknown, no idea, or not relevant).

### *Response*

For the automation response group 752 questionnaires were sent out (to 23 HRD company representatives, 320 trainees, 277 managers, 132 subordinates). For the 'social skills' group 740 questionnaires were sent out (to 21 HRD company representatives, 292 trainees, 251 managers, 176 subordinates). For both groups, all HRD company representatives filled in the questionnaire. The response rates for the other groups of respondents are for the 'social skills' group: 63% of the trainees, 49% managers, and 49% subordinates, and for the group of companies with automation programs: 54% of the trainees, 43% of the managers, and 29% of the subordinates.

### *Analysis*

To arrive at answers to the research questions descriptive statistics, cross-tabulations, chi-square analysis and one-way analysis of variance were used for the analysis of the data. A factor analysis was used to assess the construct validity of the scales. As a consequence of multilevel theory as described in a former section, and of the two-stage sampling design (first a sample of companies, then a sample of respondents within each company, which resulted in a hierarchical, nested data structure) multilevel statistical models are used for the data analysis (cf. Bryk & Raudenbush, 1992; Goldstein, Rasbach, Plewis, et al, 1998). These models allow us to make statistical inferences both at individual respondent (sample size 767) and company (sample size 44) levels.

### **Results**

The study was intended to provide insight into which factors impede or enhance the achieving of improved performance on multiple levels.

#### *Strategic HRD Alignment*

In order to study the impact of strategic HRD alignment on HRD effectiveness two scales were constructed, 'strategic HRD alignment' and 'perceived HRD effectiveness'. A factor-analysis was used for the 22 items of strategic alignment to assess its construct validity. Instead of the expected four factors, six emerged from the analysis with varimax rotation covering all aspects of strategic alignment. A one-factor analysis was then performed to find out whether the construct of strategic alignment was one-dimensional instead of multidimensional. Five items with factor loading below .40 and with item-rest correlation below .30 were dropped for further analysis. Reliability of the remaining 17 items of the scale 'strategic HRD alignment' led to an alpha of .89. Analysis of the item content proved that all four aspects of strategic HRD alignment were represented in the constructed scale. This result justifies the conclusion that the four aspects are significant in connection. The scale 'perceived HRD effectiveness' was constructed on the basis of nine items at all three levels of HRD effects. The psychometric quality of this scale was studied with a one-factor analysis and with Cronbach's alpha ( $\alpha=.89$ ). No items were excluded.

Before analyzing the impact of strategic HRD alignment on HRD effectiveness, the representativeness of the strategic alignment scale has to be considered, because this scale is based on 17 items and 543 valid cases; 224 cases were not included due to a high level of item non-response. Analysis showed that the results based on 543 cases are representative. Respondents whose opinion on the strategic alignment process is included in the analysis do not differ significantly in their opinion on HRD effectiveness ( $M=3.52$ ,  $SD=.70$ ) from those who are excluded in the strategic alignment scale ( $M=3.54$ ,  $SD=.71$ ) ( $t=.24$ ,  $df=537$ ,  $p>.05$ ).

Following the multilevel analysis strategy, as outlined above, model 0 was first constructed (see Table 1). This step was important to decide how much variance is explained by differences within and between companies and to find which variables account for this variance and to what extent. The results under model 0 indicate that the average perceived effectiveness score (the intercept) was 3.52, with a total variance of .49 (.097 + .393), of which

20%  $((.097/.49)*100\%)$  is variation between companies and 80% is variation between respondents within companies. The results under model 1 (Table 1) indicate that supervising managers, subordinates and HRD company representatives estimate higher effects than HRD participants do. Supervising managers perceive HRD effectiveness .11 higher than HRD participants do; subordinates .06; and HRD representatives .25. These differences are significant for managers and HRD company representatives. One percent of the variance in perceived effectiveness is explained by the groups of respondents.

The company score for stakeholders' opinion on strategic HRD alignment was constructed by first computing the mean of the deviation scores of each group of respondents and then calculating the mean of these four group scores. The results are presented in model 2 of Table 1. The data show that stakeholders' opinion on strategic HRD alignment within companies has a significant effect of .49 on perceived HRD effectiveness. The between companies effect of this so-called alignment perception is .47 (also significant at the .10 level one-tailed). Strategic alignment accounts for 22% of the variation in effectiveness scores  $(1-(.075+.304)/(.094+.389)*100\%)$ . The difference in deviation between model 1 and model 2a is 108.519 (884.932-776.413), with two degrees of freedom. This  $\chi^2$  analysis indicates a significant difference ( $p=.00$ ). This proved stakeholders' perception on strategic HRD alignment is an important predictor of perceived HRD effectiveness. The perceived effectiveness is even extra positive, as the mean company score on strategic HRD alignment is higher.

Table 1: Effects (and Standard Errors) of Strategic Alignment on (Perceived) HRD Effectiveness (with respondent Group of HRD participants as Contrast Group) (Number of Respondents = 440; Number of Companies = 44)

	Model 0		Model 1		Model 2	
Intercept	3.52	(.06)	3.46	(.06)	1.83	(.16)
supervising managers			.11	(.07)*	-.05	(.06)
Subordinates			.06	(.12)	.14	(.11)
HRD company representatives			.25	(.13)*	-.03	(.12)
strategic alignment within companies					.49	(.05)**
strategic alignment between companies					.47	(.19)**
unexplained variance						
between companies	.097	(.03)	.094	(.03)	.075	(.02)
Within companies	.393	(.03)	.389	(.03)	.304	(.02)
Explained variance ( $R^2$ )			1%		22%	
Deviance	890.204		884.932		776.413	
Degrees of freedom (df)			3		2	
model improvement (p) (to model)			.15 (0)		.00 (1)	

\* significant at  $\alpha < .10$  (two-tailed)

\*\* significant at  $\alpha < .10$  (one-tailed)

### *The Problem of Cognitive Dissonance*

It is conceivable that respondents may have avoided cognitive dissonance (Etgen & Rosen, 1993; Festinger & Aronson, 1997), meaning that it is not very likely they will rate a course as effective while at the same time rating the strategic alignment process as poor. Multilevel statistical models are used to handle this problem. If avoiding cognitive dissonance affects the estimate of the association between stakeholders' opinion on strategic HRD alignment and effectiveness, this relates to the within-regression coefficient, but not the degree the between-company regression coefficient exceeds this within-company regression coefficient. There is no psychological explanation for a possible extra effect of the company mean for strategic alignment on perceived HRD effectiveness over and above the individual effects. For the individual level effect, the psychological explanation of avoiding cognitive dissonance may hold, but not for the so-called contextual effect. However, a study concerning the possible presence of cognitive dissonance has to start from company scores which are computed from the scores of individual respondents, regardless to which group they belong, instead of the mean scores of the four respondent groups, as was clarified before. The results of this computing procedure show that stakeholders' opinion on strategic HRD alignment has an effect of .49 on perceived effectiveness within companies and that for the between effect the opinion on strategic HRD alignment is .63, which is considerably higher than .49. This extra effect may not only be explained by avoiding cognitive dissonance, but must also be ascribed to the strategic HRD alignment process within companies (see Wognum & Lam, 2000).

### *Organization and HRD Related Factors*

For exploring the impact of organization and HRD related factors, the variables size and structure of the company, degree of innovation of the company, structure and position of the HRD department, degree of innovation of the HRD department, design of HRD programs, conditions made for the transfer of learning results, and company HRD climate are separately brought into Model 2 (see Wognum, 2000). The variable economic sector only served as a selection criteria. It was not brought into the analysis since no significant effect on perceived HRD effectiveness was found concerning this characteristic (Wognum, 1999). For the factors size and structure of the organization, structure of the HRD function, and transfer conditions, no differences in perceived HRD effectiveness were observed. A link was found, however, between the following organization and HRD related factors and perceived HRD effectiveness.

*Problem that Served as Starting Point for HRD.* In interaction with the type of HRD program (automation or social skills) the analysis proved that the problem that served as starting point for HRD has a positive effect on perceived HRD effectiveness. If the actual performance of employees, departments or the entire company is starting point for HRD interventions, then the impact on perceived HRD effectiveness was significant lower for social skills programs than for automation programs. It was found that the problem that served as starting point for HRD has no significant effect on perceived HRD effectiveness in itself.

*HRD Climate and Position of the HRD Department.* The analysis showed that HRD climate correlates negatively with HRD effectiveness. No interaction effects were found between HRD climate and type of HRD program, indicating that the effect of HRD climate on perceived effectiveness is negative, regardless whether it concerns automation or social skills programs. The same applies to the position of the HRD department when this is not placed in the management line, but is part of a staff department, for instance, the company's personnel department. The effect on perceived HRD effectiveness is significant lower where the HRD department is part of a staff department, than when it has 'other position than a staff department', which is significant. No interaction effect between 'position of the HRD department' and 'type of HRD program' were found, implying that the perceived HRD effectiveness score in companies with an HRD department as part of a staff department is significantly lower than in companies with an HRD department positioned as other than a staff department, no matter if it concerns automation or social skills programs.

*The Form the HRD Program Takes.* More than 56% of the 44 HRD programs studied were tailor-made, 25% were standard, while about 18% had another form, usually an adaptation of a standard program to a specific company situation. The form of the HRD program correlates negatively with perceived HRD effectiveness. When compared to standard and other kind of 'off-the-shelf' programs, tailor-made programs result in a significant lower level of effectiveness. No significant effects were found when interacting the variable 'form of HRD program' with the variable 'type of HRD program'. This means that the perceived effectiveness of tailor-made programs are less than other program forms, irrespective of whether they are geared to automation or social skills.

### **Conclusion**

Based on the results it may be concluded that many factors have an impact on HRD performance or effectiveness. One of the findings showed that strategic HRD alignment is positively correlated with HRD effectiveness. This may lead to the conclusion that the strategic HRD alignment process is an important intermediate factor in enhancing (or impeding) the impact of HRD on company performances. Contextual elements, like HRD climate, position of the HRD function and the form of the HRD program, are important effectiveness influencing factors, although some unexpected results were found. This may partially be due to the fact that the data were based on perceptions of one respondent group, HRD company representatives. Their perceptions may be different from those of other groups of stakeholders. In future research these contextual factors should be measured not only among HRD representatives but also among other stakeholders in organizations in order to investigate the influence of these factors on HRD effectiveness.

Based on the findings it is now possible to start the building of an HRD performance or effectiveness model, and visualize the connection between all elements. This can be done in several ways (see for instance Holton, 1996). In this study the choice is made for an HRD effectiveness model derived from the integrated, multilevel model of school effectiveness (Scheerens & Bosker, 1997). Following this model and based on the information in

the former sections, there are two main characteristics of the HRD effectiveness model. Firstly, according to a basic systems model of an organizationally and contextually embedded production process, the antecedent conditions are classified in terms of inputs, processes and contexts of HRD. Secondly, the model has a multilevel structure, where the HRD function is embedded in organizations (strategic HRD alignment as an organization process), and individual employees who want to develop themselves are embedded in the HRD function (HRD process).

These characteristics are visualized in Figure 2, together with the empirically found indications for certain relations in this model, as was presented in this paper. The findings give some insights into ways to improve the effectiveness of HRD programs and other learning interventions

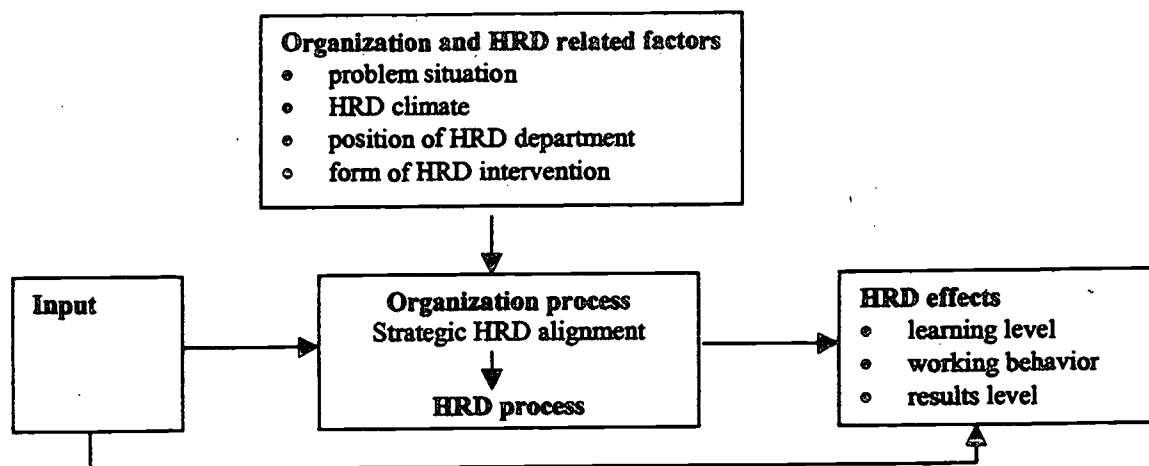


Figure 2. A model of HRD Effectiveness

Much more research, however, is needed to discover other predictors of HRD effectiveness so that the effectiveness model can then be fleshed out and provide us with an adequate explanation for the effectiveness of company HRD programs. It is, among others, important to find input characteristics which are important for enhancing HRD effectiveness. Van der Klink (1999), for instance, found that transfer of training is largely explained by characteristics of participants, i.e. the level of self-confidence and behavior after training. Hoekstra (1999) also found that enhanced employees' feelings of self-efficacy play a central role in training effectiveness. However, feelings of self-efficacy concerning a specific kind of behavior only influence the performing of that behavior under certain environmental conditions. The transfer of learned behavior proved to be a function of characteristics of the environment in which the trainees needed to work, like for instance practical support (Hoekstra, 1999). Van der Klink's study, on the contrary, indicated workplace characteristics like manager support or pressure of work, of virtually having no influence on the transfer of training (Van der Klink, 1999). Other findings underpin the importance of further investigating the mutual relationships between intermediate factors in the model and with HRD effectiveness. Holton and Kaiser (2000), for example, found evidence for the impact of some organizational learning characteristics on perceived innovation, which in turn, they expect, will improve performance.

Due to the recent trend for less traditional and more informal HRD interventions than the ones mentioned in this survey, research is needed into the way the alignment process can be approached in more informal and on-the-job training and learning situations. Further research also needs to focus on alignment processes and other effectiveness enhancing factors in small and medium sized companies (SMEs). Like the study presented here, HRD research has traditionally focused on large organizations despite the prevalence of small business in today's economy.

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