EFFECTS OF HUMAN RESOURCES STRATEGIES ON SUCCESS OF SMALL-SCALE BUSINESSES: A LONGITUDINAL STUDY

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ABSTRACT

Human resources of employees are important for management and organizational science but they are widely ignored in small-scale entrepreneurship research. However, employees constitute an important resource of small- scale enterprises and an efficient utilization of employee's skills, motivation, and behavior are essential for business success. In this study we analyze the effects of Human Resource Management (HRM) strategies on small business success. 119 small-scale enterprises participating in the longitudinal study. Human resource strategies consisted of training of employees, decision -making involvement, goal communication, and support for personal initiative and were shown to positively affect business success. Moreover, human resources management was more effective when business owners as well as employees had high human capital.

INTRODUCTION

Small-scale enterprises are important for modern economy and it is widely recognized that they contribute to employment growth (Drucker, 1985). About 99% of all European companies are small and medium sized and they provide 66% of all working places (ECSB Newsletter). Over the last decade, enterprises with less than 10 employees provided more new jobs than bigger companies (Mulhern, 1995). Surprisingly, personnel management of small businesses is widely ignored in popular textbooks as well as in empirical research (Hornsby & Kuratko, 1990b). However, employee effectiveness might be even more important in small companies compared to bigger companies. A weakness of small enterprises is their low labor productivity combined with lower than average wages (Mulhern, 1995). Improving companies effectiveness through rationalization is hardly possible in small companies because of weak financial resources and a limited number of employees. While task differentiation is low in small enterprises, individual employees have to work in various areas. Consequently, the employees and an optimal utilization of their knowledge, capacities, and motivation are essential for small-scale business success.

Human resource management (HRM) involves practices that ensure that employees' collective knowledge, skills, and abilities contribute to business outcomes (Huselid, Jackson, & Schuler, 1997). The traditional conceptualization of HRM focused on managing, measuring, and controlling organization's workforces. Tactical (Whitner, 1997) or technical (Huselid et al. 1997) HRM includes selection testing, training, performance measurement and administration of benefits (Whitener, 1997). Huselid et al (1997) identified empirically a second dimension of HRM activities: strategic HRM includes employee participation and empowerment, communication, team based work design, and development of managers of the organization. Arthur (1994) identified two types of human resource systems similar to those found by Huselid et al (1997): Commitment and control. The human resource system that is based on commitment is focusing on the psychological links between organizational and employee goals. It is associated with higher involvement in managerial decision, participation, providing training and rewards. A human resources system that is based on control focuses on directly monitoring and rewarding employee behavior or the specific outcomes of that behavior (Arthur, 1994).

The theoretical literature suggests that HMR practices increase productivity by increasing employees' skills and motivation. Moreover, HRM practices contribute to business objectives through strategic innovation or technical competence. Recent empirical studies on larger companies supported the basic assumptions of HRM theory (Arthur, 1994; Huselid, 1995; Huselid et al., 1997). However, does this theory apply to small-scale enterprises as well? HRM also carries costs and they might neutralize the positive effects of HRM in small-scale enterprises. HRM is an investment, and thus, it costs time and/or money. The current performance of employees may even be decreasing because of the time spent on training. Moreover, HRM can only have effects when employees stay in the company for a certain period of time. Otherwise the company suffers a loss because of the investments in HRM. Thus, the benefits of HRM must exceed costs invested in HRM. Since small-scale enterprises have limited financial resources it is very well possible that large investments in HRM do not pay of.

With respect to small-scale enterprises, the literature on personnel issues is more conceptual than empirical/ data based (Hornsby & Kuratko, 1990). However, a few studies have analyzed whether HRM practices were used in small firms. Golhar and Deshpande (1997) found that many HRM practices of small and large manufacturing firm were similar. However, bigger firms used external sources of recruitment, written tests, and panel interviews more frequently. In small firms, employee's ability to inspect their own work was more important than in large firms. Similarly, Hornsby

and Kuratko (1990) found that the perceived concern over the most important future human resource issues is not affected by firm size. However, larger companies (up to 150 employees) used questionnaires, application blanks, benefits, and performance appraisal more frequently than small businesses (1–50 employees). The authors concluded that "personnel practices of smaller firms are much more sophisticated than the literature leads one to believe" (p. 16). However, the more interesting question is whether HRM practices affect small business success positively. To our knowledge, there are no studies about the relationship between HRM and success of small-scale enterprises. Welbourne and Andrews (1996) found that HRM predicted long-term survival of mid-sized initial public offering firms. The literature on larger companies also suggest that there is a positive relationship between HRM and success (Arthur, 1994; Huselid, 1995). Therefore, our first hypothesis is:

Hypothesis 1: HRM practices have positive effects on small-scale business success.

Human resources do not just have to be developed but there is, of course, already a certain amount of human capital in each firm consisting of the human capital of employees and of the owner. Human capital consists of skills, knowledge and experience that help in the tasks of getting one's work done. General human capital consists of aspects, which are not specifically related to a particular job, for example years of schooling, years of work experience (Bruederl, Preisendoerfer, & Ziegler, 1992). Specific human capital must be adapted to a specific task or a specific firm. Specific human capital of business owners consists of self-employment experience, industry specific experience, leadership experience, and self-employed parents (Bruederl et al., 1992). Theoretically, human capital acts as a resource to the small firm. It makes business owners/employees more efficient in doing their work, which results in business success. A second mechanism of human capital is due to selection effects. For example, people with higher human capital had higher earnings prior to self-employment, and therefore, can set up larger and better financed businesses (Bruederl et al., 1992).

Several studies on small-scale business owners supported the basic assumptions of human capital theory (see reviews by Cooper & Gimeno-Gascon, 1992; Rauch & Frese, 2000). While entrepreneurship research was frequently concerned with human capital of business founders/owners, the human capital of employees of small enterprises has been widely ignored. However, the theoretical assumptions of human capital theory should hold for employees as well. Thus, the human capital of employees makes the employee more efficient in their daily work and this should, in turn, affect business success. We, therefore, hypothesize:

Hypothesis 2: Human capital of business owners has a positive effect on business success

Hypothesis 3: Human capital of employees has positive effects on small business success.

While the positive relationship between human capital of business owners and success is well established the relationship is no high enough to make human capital the decisive factor for business success. Analyzing seven studies quantitatively, Rauch and Frese (2000) found an average correlation of .09 between human capital and small business success. Given the small effect of human capital on business success, it may be useful to look whether human capital impacts on the effect of HRM on success. With respect to HRM, human capital of business owners is important because better educated people are expected to be more receptive to new ideas and novel ways of leading people (Sagie, 1997, p. 401), to be able to consider recommendations of employees, to communicate specific goals and objectives, and to use better strategies in leading employees. Therefore, HRM is more effective when business owners have high human capital.

Moreover, employees' human capital should also be a moderator of the relationship between HRM and success for two reasons: First, employees with a high level of education can effectively contribute to decision making and goal setting (Sagie, 1997). Second, HRM provides a tool to increase firm-specific skills that are not available in the labor market. Better educated and qualified employees should be able to increase their firm specific skills and knowledge quicker and more easily than less educated and qualified employees. Therefore, human capital of employees moderates the effect of HRM on success. Drawing on the above rationale, we propose the following hypotheses:

Hypothesis 4: Human capital of business owners moderates the effect of HRM on business success.

Hypothesis 5: Human capital of employees is a moderator in the relationship between HRM and business success.

METHODS

Sample

The first wave of the study was done in 1993. The sample was drawn from Jena in East Germany and from Giessen in West Germany. Both cities have structural similarities; they are university cities with around 75.000 inhabitants. The participants were randomly chosen from lists, provided by the local chambers of commerce (registration is mandatory in Germany).

The participants were selected by using four criteria: First, the enterprise had to have between one and fifty employees.

This corresponds to the European Union definition of small-scale firms. Second, since self-employment was hardly possible in the former communist East Germany, the enterprises had to be founded after the German reunification. Thus, enterprises had to be founded between 1990 and 1992. Third, the participant had to be the founder and owner of the enterprise and fourth, the enterprise had to be a stand-alone business or a franchise business. Thus, the first wave sample consisted of newly founded small-scale enterprises. They had about 8 employees on average.

In the first wave, 201 owners provided data. The response rate was 58%. In 1997, the second wave of the longitudinal study was done. Of the original sample, 58 enterprises could not be identified again at the time of wave two (experimental mortality 29%). They may have moved, may have changed companies' name or may have gone bankrupt. We attempted to locate them, partly by telephone books or by asking neighbors as to the whereabouts of these enterprises. We found out that 27 of those enterprises had to close down their company. The second wave of the longitudinal study consisted of 119 enterprises. 24 enterprises rejected to participate in wave two. The response rate was 83%.

Measurements

The business owners participated in an one hour standardized interview. In addition, business owners were asked to fill in a questionnaire. The questionnaire scales were divided by the number of items. Two independent raters coded the interviews on five-point-scales and their mean ratings were used. Reliabilities were satisfying for this type of study (Nunnally, 1978, p 226); they are displayed in the diagonal in **Table 1**.

We focused on four major areas of HRM: Training/development of employees, decision-making involvement, support for personal initiative, and goal communication. These concepts were measured in both waves. Training/development of employees was an interview measure that asked about courses or training programs provided for the employees. The raters coded how much training employees received. We had two measures on decision-making involvement in the interview. The business owners were asked to describe whether employees are allowed to participate in business decisions. The ratings were on the quality of decision-making involvement (with a one for no decision-making involvement and a five for involvement in strategic and operational decisions) and on the frequency of decision-making involvement. The degree to which employees were encouraged to take over responsibilities, to work independently, and to control their work themselves was measured by support for personal initiative (Frese & Hilligloh, 1991). Support for personal initiative was a 7-item measure of the owner questionnaire. Finally, the business owners were asked how they communicate business goals and objectives. The ratings were on the degree to which goals and objectives were made transparent to employees.

We explored the dimensionality of our HRM measures by using a principal component factor analysis. These analyses indicated a one-factor solution in both waves (**Table 2**). Therefore, we computed one scale, which was labeled human resource management strategy.

Human capital of business owners was asked in wave one and was measured as an index. There were four measures related to general human capital. School degree and degree of vocational training were measured in the owner-questionnaire. Degree of vocational training of father, and management experience were interview measures. Specific human capital was measured in the interview and consisted of prior self-employment experience, prior self-employment in the same type of industry, and self- employed father. These measures are causal indicators of human capital, which need not to be internally consistent (Bollen & Lennox, 1991). For example, the relationship between having a high school degree and experience in prior self-employment is not necessarily high. Nevertheless, high values on the index reflect more knowledge and experiences, and therefore, high human capital.

To measure human capital of employees, we did not use school degree but rather whether they were qualified to do their work. There were two questionnaire items in wave one that asked business owners to indicate, whether employees are well trained and qualified for their work.

There were two measures of business success in wave one and in wave two: Business success and business owners' satisfaction. Business success consisted of growth and size of enterprise. Growth of enterprise was the average growth in the number of employees in the last three years. Size of the enterprise was the actual number in employees. Since growth and size of enterprise were highly interrelated ($r = .74$, $p<.01$ in wave one; $r = .42$, $p<.01$ in wave two) we combined them into one measure which in the following is referred to as business success. Business owner's satisfaction was a single seven- point- item of the questionnaire.

Additionally, control variables on company age, and industry type (craft, service, trade, and manufacturing) were ascertained by single items in the questionnaire. These controls were based on prior research. There is evidence, that newly founded enterprises have a higher risk to fail than long established ones (Bruederl et al., 1992). Therefore, we controlled for company age. Additionally, our design included various industries and therefore, we controlled for type of

industry. Type of industry was dummy-coded in craft, trade, service, and manufacturing.

RESULTS

Inter-correlations of variables are displayed in **Table 1**. Hierarchical regression analyses were used to test the hypotheses (Cohen & Cohen, 1975). The dependent variables were business success and owner's satisfaction at t2. Prior success (t1) was held constant. Control variables were included in a second step. In the third step, HRM strategies were included into the equation to check whether this step leads to a significant R square increment. The first hypothesis was partially supported. HRM strategies had an effect on increase in business success (**Table 3**) increasing explained variance by 7%. However, HRM strategies did not predict changes in business owner's satisfaction (**Table 4**).

We tested the effect of human capital of business owners and of employees by introducing them in the fourth step of the regression equation. Human capital had positive effects on changes in business success (**Table 3**). Increased explained variance was 4%. In accordance with the second hypothesis, human capital of business owners had positive effects on changes in business success. The effect of human capital of employees was non-significant in multivariate analyses. Therefore, hypothesis three had to be rejected.

In the moderator hypotheses we assumed that high human capital of business owners and of employees produce a higher effect of HRM strategy on success than a low degree of human capital. To test these hypotheses, the interaction terms between HRM and human capital were included in a fifth step of the regression equation. When predicting business success, the interaction terms were both significant (**Table 3**). Increased explained variance was 12% ($p<.01$). Thus, supporting the fourth and the fifth hypotheses, the effect of HRM strategies on business success was contingent on human capital of business founders and on human capital of employees. **Table 4** displays the effect of HRM strategy on business owner's satisfaction. Neither HRM strategy nor human capital had main effects on changes in owner's satisfaction. However, when the interaction terms entered the equation, increased explained variance was 7%. The interaction term between HRM and human capital of employees was a significant predictor of increasing business owner's satisfaction.

To illustrate the direction of interaction effects we generated a series of simple regression analyses of HRM strategy on success at specific values of the moderators (Aiken & West, 1991). **Figure 1** displays two regression lines, one for business owners with high human capital, and one for those with low human capital. The increasing regression line of business owners with high human capital indicates that these business owners were more successful when they used HRM strategies. In contrast, when business owners had low human capital, HRM strategies had no effect on business success. Similarly, when employees had high values in human capital, the regression line was increasing indicating a positive effect of HRM strategies on business success (**Figure 2**). The decreasing regression line in Figure 2 indicates that HRM led to reduced success when employees were poorly qualified. **Figure 3** illustrates the direction of the interaction effect on owner's satisfaction. The increasing regression line of enterprises with high values in employee's human capital describes a positive effect of HRM on owner's satisfaction. In contrast, when employees had little human capital, HRM strategies had a negative impact on owner's satisfaction.

DISCUSSION

The results of this study highlight the importance of HRM strategies for small-scale businesses. HRM strategy has positive effects on increases in business success. Thus, what is important for bigger companies (Arthur, 1994; Huselid et al., 1997) is important for small-scale businesses as well. Moreover, the effects of HRM strategies were dependent on human capital of business founders and on human capital of employees. HRM strategy was particularly efficient when there was high human capital of both, business owners and employees.

HRM strategy consisted of training/development of employees, decision-making involvement, goal communication, and supporting personal initiative. It is interesting to discuss that these strategies had long term consequences: HRM strategy had effects on increases in business success five years later. Thus, HRM strategies do not pay off immediately (Welbourne & Andrews, 1996). In fact, there are costs in the short term, and therefore, HRM is successfully in the long term. For that reason, we did not find a contemporaneous effect but only a longitudinal effect. HRM strategy continuously trains employees through better informations and more insight into business decisions and business objectives. Consequently, employees work more actively and more efficiently in the long term.

Human capital of business owners had direct effects on changes in business success. This result is in accordance with other studies which found consistently small but positive relationships between human capital and small business success (see review Rauch & Frese, 2000). Moreover, we found that high owner's human capital produced a higher effect of employee HRM on success, than low owner's human capital. With respect to HRM strategy, human capital of business owners is important because better-educated people are more receptive to novel ways of leading people and to ideas and initiatives provided by the employees.

Human capital of employees was positively correlated with success in bivariate analyses. However, when predicting changes in business success its beta-weight was positive, but non-significant. However, we used an indirect way of

measuring employee's human capital; we asked the business owner about it. In that way, we may have increased error variance. Potentially, human capital of employees has more predictive power when asking employees directly about their human capital. However, as hypothesized we found that HRM had stronger effects on business success when employees had high human capital compared to employees with low human capital. Employees' human capital is important because better qualified employees can meaningful contribute to decision making, can direct their initiatives to companies mission, and learn firm specific skills more easily. Therefore, HRM strategy is more important when there is high human capital in the firm.

This study has some limitations and strengths. First, we did not measure employee behaviors but rather self-reports of the business owner. Therefore, we do not know what actually happens in the firm. However, it is important to study the mechanisms of how HRM affect business performance. It is a difference, for example, whether employees are more efficient because of their skills or because of higher levels of motivation. Further research should address this question. Moreover, we used a scale to measure an overall HRM strategy and therefore, we do not know which combinations of HRM are the most powerful predictors of success. Huselid et al. (1997) for example showed that in bigger companies strategic HRM is more important than technical HRM. Finally, the moderators were focused on business owner and employee variables. However, there are other contingencies likely, for example environmental conditions or innovative strategies. One strength of the study is its longitudinal design. The design controls for percept-percept problems since different instruments as well as different times of measurement were used. Therefore, we can conclude that HRM is indeed important to increase long range success.

This study has important theoretical and practical implications. Theoretically, a model on business success should include employee issues. Having only a few employees does not mean that they are not important. In contrast, they are important and a HRM strategy has positive consequences on business outcomes. This is particularly true when there is high human capital in the firm.

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REFERENCES

Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Newbury Park, CL: Sage Publications.

Arthur, J. B. (1994). Effects of human resource systems on manufacturing performance and turnover. *Academy of Management Journal, 37*(3), 670–687.

Becker, G. S. (1980). *Human Capital. A theoretical and empirical analysis, with special reference to education*. Chicago: The University of Chicago Press.

Bollen, K., & Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological Bulletin, 110*(2), 305–314.

Bruederl, J., Preisendoerfer, P., & Ziegler, R. (1992). Survival chances of newly founded business organizations. *American Sociological Review*, 57, 227–242.

Cohen, J., & Cohen, P. (1975). *Applied multiple regression/ correlation analysis for the behavioral science*. New Jersey: Lawrence Erlbaum, Hillsdale.

Cooper, A. C., & Gimeno-Gascon, F. J. (1992). Entrepreneurs, process of founding, and new firm performance. In D. L. Sexton & J. D. Kasarda (Eds.), *The state of art of entrepreneurship*. (pp. 301–340). Boston.

Drucker, P. F. (1985). *Innovation and entrepreneurship*. New York: Harper.

European Council for Small Business (1997). *Newsletter*, 4, 5.

Frese, M., & Hilligloh, S. (1991). *Aktives Handeln in einer Umbruchsituation: eine Laengsschnittstudie*. (Berichte an die DFG). Giessen: University of Giessen.

Golhar, D. Y., & Deshpande, S. P. (1997). Human resource management practices of large and small Canadian manufacturing firms. *Journal of Small Business Management*, 35(3), 9–30.

Hornsby, J. S., & Kuratko, D. F. (1990). Human resource management in small business: Critical issues for the 1990's. *Journal of Small Business Management*, 28(3), 9–18.

Huselid, M. A. (1995). The impact on human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38(3), 635–672.

Huselid, M. A., Jackson, S. E., & Schuler, R. S. (1997). Technical and strategic human resource management effectiveness as determinants of firm performance. *Academy of Management Journal*, 40(1), 171–188.

Mulhern, A. (1995). The SME sector in Europe: A broad perspective. *Journal of Small Business Management*, 33(3), 83–87.

Nunally, J. C. (1978). Psychometric theory. (2nd ed.). New York: McGraw-Hill.

Rauch, A., & Frese, M. (2000). Psychological approaches to entrepreneurial success: A general model and an overview of findings. In C. L. Cooper & I. T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology*, Vol. 15, Cap 3 (pp. 100–135). Chichester Sussex: Wiley & Sons.

Sagie, A. (1995). Leader direction and employee participation in decision making: Contradictory or compatible practices? *Applied Psychology: An International Review*, 46, 4, 387–452.

Welbourne, T. M., & Andrews, A. O. (1996). Predicting the performance of initial public offerings: Should human resource management be in the equation? *Academy of Management Journal*, 39(4), 891–919.

Whitener, E. M. (1997). The impact of human resource activities on employee trust. *Human Resource Management Review*, 7, 4, 389–404.

Table 1
Inter-Correlation of Variables and Partial Correlation Matrix

	1	2	3	4	5	6	7	8	Mean	sd.
1. Business success t1	b)	.57**	.00	-.06	.17*	.02	.16*	-.03	3.96	5.32
2. Business success t2	.55**	b)	-.01	.05	.37**	.05	.35**	.25**	3.30	4.16
3. Owner's satisfaction t1	-.01	.01	a)	.55**	.14	.20*	-.08	.21**	5.61	.97
4. Owner's satisfaction t2	-.06	.07	.55**	a)	-.06	.19	-.08	.07	5.46	1.07
5. Human Resource Management t1	.16*	.37**	.14	-.06	.72	.28**	.27**	.27**	2.91	.76
6. Human Resource Management t2	.03	.00	.24*	.21*	.28**	.78	.07	.21*	2.92	.73
7. Human capital of owners	.14	.31**	-.07	-.08	.26**	.05	b)	.13	.00	.48
8. Human capital of employees	.00	.21*	.23**	.09	.26**	.18	.10	.68	3.88	.68

Note: Coefficients above the diagonal are zero order correlations. Coefficients below the diagonal are partial correlations, controlling for age of enterprises and type of industry (craft, manufacturing, service and trade). Reliabilities are displayed in the diagonal. a) single item measure. b) index. *p<.05. **p<.01.

Table 2
Principal Component Factor Structure of HRM Items

Items	Factor wave one	Factor wave two
Decision-making involvement, quality	.90	.91
Decision-making involvement, quantity	.90	.88
Training/ development	.48	.53
Support for initiative	.41	.59
Goal communication	.66	.69
Eigenvalue	2.45	2.72

Variance explained	49%	54%
Cronbach's Alpha	.72	.78

Note: Displayed coefficient are factor loadings.

Table 3
Hierarchical Regression Analysis of Variables Predicting Changes in Business Success

Step and predictor	**1**	**2**	**3**	**4**	**5**
1. Business success t1	.57**	.52**	.48**	.45**	.39**
2. Control variables					
Industry type: craft		-.03	-.03	.01	-.04
Industry type: trade		-.03	-.04	-.03	-.09
Industry type: manufacturing		.25**	.22**	.19*	.19**
Age of enterprises		.02	.04	.05	.08
3. Dependent variable					
Human resources management t1			.27**	.23**	-1.80**
4. Moderator variables					
Human capital of business owners				.17*	-.76*
Human capital of employees				.09	-1.26**
5. Interaction terms					
Human resource management x human capital of business owners					.91**
Human resources management x human capital of employees					2.67**
R^2	.33**	.39**	46**	.49**	.61**
Adjusted R^2	.32	.35	.42	.45	.57
ΔR^2	.33**	.06	.07**	.04*	.12**

Note: Displayed coefficients are standardized regression coefficients. *p<.05. **p<.01.

Table 4
Hierarchical Regression Analysis of Variables Predicting Changes in Owner's Satisfaction

Step and predictor	**1**	**2**	**3**	**4**	**5**
1. Owner's satisfaction t1	.55**	.56**	.56**	.56**	.53**
2. Control variables					
Industry type: craft		-.05	-.05	-.05	-.11
Industry type: trade		.02	.02	.02	-.03
Industry type: manufacturing		-.01	.00	.01	.02

Age of enterprises		-.07	-.08	-.08	-.03
3. Dependent variable					
Human resources management t1			-.09	-.08	-1.89**
4. Moderator variables					
Human capital of business owners				-.02	.00
Human capital of employees				-.02	-1.24**
5. Interaction terms					
Human resource management x human capital of business owners					-.09
Human resources management x human capital of employees					2.44**
R^2	.30**	.31**	.32**	.32**	.39**
Adjusted R^2	.30	.27	.27	.26	.32
ΔR^2	.30**	.01	.01	.00	.07**

Note: Displayed coefficients are standardized regression coefficients. *p<.05. **p<.01.

Figure 1
Human Capital of Business Owners Moderating the Effect of HRM on Business Success

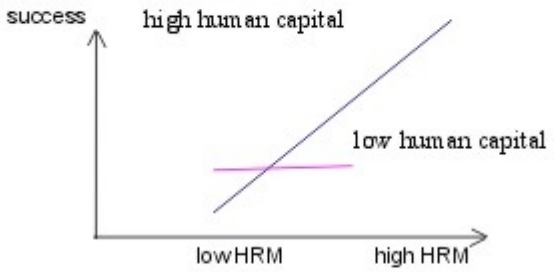

Figure 2
Human Capital of Employees Moderating the Effect of HRM on Business Success

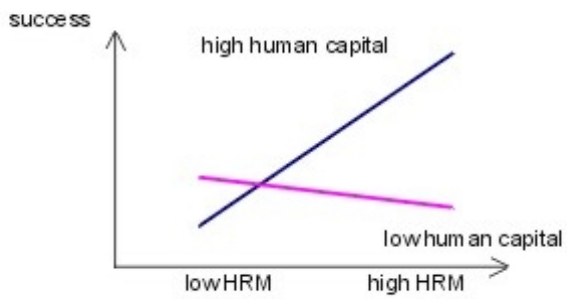

Figure 3
Human Capital of Employees Moderating the Effect of HRM on Satisfaction with Work