DOCUMENT RESUME

ED 442 776 SP 039 305

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TITLE Schools as Places for Teachers To Learn? Opportunities for Professional Development in Dutch Educational Reform.
PUB DATE 2000-04-00
NOTE 16p.; Paper presented at the Annual Meeting of the American Educational Research Association (New Orleans, LA, April 24-28, 2000).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Educational Change; *Faculty Development; Foreign Countries; Inservice Teacher Education; Secondary Education; Teacher Behavior; *Teacher Improvement; Teaching Conditions
IDENTIFIERS *Netherlands

ABSTRACT

This paper discusses a study of Dutch secondary education reform, describing the background, noting implications for teacher learning, and arguing that learning supports professional development and derives from performance of activities that help teachers develop professionally. Based on a literature study, a conceptual model was developed in which characteristics of the individual, the task, and the work environment were related to performance of professional development activity. To explore the relevance of the conceptual model, two research questions were addressed: To what extent do teachers perform professional development activities? and What factors affect these activities? A survey was conducted with 542 teachers from 10 secondary schools to study these questions. The survey looked at years of experience, professional attitudes, meaning attached to professional development activities, job stress, job demands, job control, social support, and developmental press. Results indicated that professional development activities focused on three types of activities related to different aspects of professional behavior. The frequency with which different professional development activities were performed differed significantly. The study provided evidence of many variables that predict the frequency of professional development activities. (Contains 27 references.) (SM)

Schools as places for teachers to learn?

Opportunities for professional development in Dutch educational reform

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Paper presented at the annual AERA conference,
24 – 28 April 2000
New Orleans

Abstract

In the Netherlands, a large-scale educational reform is currently being implemented in secondary education. In the context of this reform, there is an urgent need for knowledge about teacher learning. In this paper the background of the reform and the implications for teacher learning will be described at first. It is argued that learning supports professional development and derives from performance of activities that help teachers develop professionally. Two research questions were addressed: 1) To what extent do teachers perform professional development activities? and 2) What factors affect these activities? Based on a literature study a conceptual model has been developed in which characteristics of the individual, the task, and the work environment are related to performance of professional development activity. A survey was conducted to explore the relevance of this conceptual model (n = 542 teachers). It is concluded that more learning opportunities have to be created within schools in order to reach the desired reform goals.

Introduction

The current reform aims at a major change in the secondary school curriculum. So, new subjects are incorporated into the curriculum in addition to traditional subject matter knowledge. Next, higher-order thinking skills have been explicitly defined as educational goals for students. The background of this curriculum renewal is a growing need in modern society for people who are ready for lifelong learning and know how to learn. Secondary schools have to bear responsibility in preparing for lifelong learning by promoting active and independent learning of students. This idea of active and independent learning is derived from new theoretical insights in which learning is conceived as an active, constructive and context-bound activity. "Current theory holds that students learn best when they have the opportunity to actively construct their own knowledge" (McLaughlin, 1997, p.79). But promoting this kind of student learning requires a new pedagogical approach of teachers. In order for students to construct their own knowledge, teachers can not longer adhere to their traditional roles of transmitting knowledge. Instead they have to fulfill a new role by creating stimulating learning environments and acting as facilitators in students' learning processes. Thus, teachers are confronted with profound changes in their daily practices and routines, and these changes urge teachers to acquire new skills, knowledge, and attitudes (Fullan, 1992; Hargreaves, 1994).

How are teachers prepared for this new role? Traditionally, teachers attend courses, training, or conferences and read professional journals to update their knowledge and skills. Recently the sufficiency of these traditional professional development activities is debated, as these activities are

largely based on a view of learning as transmission of knowledge (Bransford, Brown & Cooking, 1999; McLaughlin, 1997; Lieberman, 1996). The argument is that a change in practice requires teachers not to consume knowledge but to construct their own knowledge, so to learn in the same way as their students: active, constructive, and context-bound.

This new view on teacher learning has consequences for teachers as well as for schools. Teachers have to learn within the context of their daily activities, whereas schools have to develop into places for teachers to learn by providing a large range of learning opportunities for their teachers (Borko & Putnam, 1996; Smylie, 1995). However, it is also remarked that most schools fall short in this respect (Leithwood, Dantzi & Steinbach, 1998).

Based on these consequences two questions were formulated to direct further literature study: 1) How do teachers learn within their working context? and 2) What factors promote or inhibit teachers' learning? Answers to the second question will help to shed light on how to stimulate teacher learning within schools. But in order to stimulate learning we first have to know how it is affected.

Teacher learning: performing professional development activities

It is suggested that teacher learning is a new topic, so relevant knowledge in this domain is lacking (Bransford, Brown & Cocking, 1999). Although there may be no well-defined body of knowledge about teacher learning, it is too simply stated that we know nothing about it. The literature concerning adult learning, professional development, and school improvement contains useful insights which may apply for teachers as well.

Adult learning theory ascribes two important characteristics to learning that are certainly applicable. First, as learning from experiences is the most dominant form of adult learning, learning is embedded in daily activities and thus, takes place in many different ways (Merriam & Caffarella, 1993). Secondly, a great deal of adult learning is not organized by educators, but takes places in a self-directed way (Candy, 1991). This means that the learner takes initiative for learning as well as for planning, executing and evaluating learning activities.

From a professional development perspective, teachers as professionals ought to continuously improve the quality of service provided to their clients in order to improve the quality of education (Hoyle & John, 1995). This quality improvement requires learning processes throughout the teaching career (Eraut, 1995). However, only those learning processes that help teachers recognize and change routine behavior learning are considered to lead to improvement. For these learning processes to take place, teachers need to reflect on their practical experiences and, most important on their own teaching behavior (Schön, 1983). So, reflection is viewed as the cornerstone of professional development as it

is prerequisite to raise awareness of a discrepancy between one's own practice and desirable professional and educational goals.
School improvement theory also stresses the importance of reflection in school reform. Besides, these theories provide additional insight on how to stimulate teachers to reflect individually as well as collectively. In order to provoke reflection teachers have to perform specific activities in which the effectiveness of their daily practice is questioned. Characteristic of these activities is that they are connected to daily experiences in the workplace, and that they are collaborative rather than individual in nature (Hargreaves, 1997; Lieberman, 1996; Little, 1993; Rosenholtz, 1989; Southworth, 1994).

What do these theories contribute to our question how teachers learn within their working context? First, teacher learning aims at professional development and is self-directed in nature. Teachers as professionals have to solve real problems that bear direct relevance to them and help them to improve their practice, so to improve student learning (McLaughlin, 1997). As the workplace offers the best opportunities for self-directed learning, the workplace is considered the most suitable place for teacher learning. Secondly, as a result of this, the main mechanism for professional development is performance of activities of teachers themselves. According to the literature these activities can be subdivided into four categories:

1. keeping up with new developments in the professional field;
2. putting new developments and insights into practice;
3. reflecting on one's own performance;
4. collaborating in policy and practical matters.

Thus, these activities may be concerned as learning activities that help teachers develop professionally. Therefore, they are called professional development activities.

Conceptual model of teachers' professional development activity

As the second question concerned factors that promote or inhibit teachers' learning, the literature was reviewed for variables that affect teachers' performance of professional development activities. Variables were searched for within theories of learning, work-based learning, professional and school development. As a result of this review a conceptual model (Figure 1) has been constructed in which features of the individual, the task, and the work environment are independent variables whereas performance of various professional development activities is a dependent variable.
Concerning individual characteristics, as teacher development theory refers to 'years of experience' as a relevant feature in, this variable was selected for inclusion the model (Huberman, 1993; Leithwood,

1992). Self-directed learning theories stress subjective perceptions that elicit the meaning teachers attach to situations as most significant (Candy, 1991). For performance of professional development activities the meaning attached to these professional development activities ('appraisals') as well as the meaning attached to professional responsibilities for activities ('professional attitudes') seemed relevant in this respect and thus were included.

In selecting task characteristics the Karasek model of job-stress played a significant role (Karasek & Theorell, 1990). This social psychological model proposes that stress as well as learning results from the joint effects of 'job demands' and the discretion permitted to the worker in how to meet these demands ('job control'). As learning is explicitly defined as active behavior, the model is well suited to our approach of teacher learning. So, these two job characteristics 'demands' and 'control' are included in the model. Moreover, based on the assumptions of Karasek and Theorell that stress and learning are mutually related, thus that stress affects the performance of professional activities, stress was also viewed as an important variable to include in the model.

The selection of work environment characteristics ('social support' and 'developmental press') was based on congruence between different perspectives and empirical evidence. Different studies into stress as well as into school improvement indicate that these variables are significant working conditions for teachers (Firestone & Pennell, 1993; Greenglass, Burke & Konarski, 1997; Karasek & Theorell, 1990; Leithwood, 1992; Little, 1993; Rosenholtz, 1989).

To explore the relevance of this conceptual model, an empirical research was set up. In this study two research questions were addressed:

1. To what extent do teachers perform professional development activities?
2. What are the effects of characteristics of the individual, the task and the work environment on performing professional development activities?

Method

The study is explorative in nature. It is not aimed at verifying hypotheses or testing the conceptual model. The main aim is to elicit variables affecting teacher learning (conceptualized as performance of professional development activity). Therefore, only direct effects of independent variables on teacher professional development activity are studied. Although independent variables may be interrelated or assert indirect effects, these relationships are not taken into account.

Sample and procedure

Data collection took place in the spring of 1997 by means of a survey. A questionnaire was administered to all teachers in ten secondary schools. These ten schools were not randomly selected as schools were just arbitrarily invited to participate in the survey. Most schools participated because of interest in the research topic and results. Nevertheless, as Dutch schools mainly differ in the level of education provided, the sample was compared with the total population of schools in the Netherlands. Five schools provide all levels of general as well as initial vocational education; 3 schools provide only general education (at all levels); 2 schools provide general education at the lowest level as well as initial vocational education. This proportion of different school levels is in accordance with the proportion in the total population of Dutch schools.

From the 939 teachers in these schools 542 teachers returned the questionnaire (response rate of 59%). The sample consists of 367 men (68,3%) and 170 women (31,7%). The mean age of the sample is 45,8 years (SD = 9.0) whereas their mean working experience is 20,1 years (SD = 9.8). With respect to age and gender the sample is representative for the total population of teachers. However, the majority of the sample is over 40 years (74,7%) which means that in this respect the sample is not fully representative for the total population of teachers in the Netherlands (70%). Considering the subject matter in which teachers deliver most lessons, the group is divided as follows: 174 languages teachers (33%); 99 science teachers (18,8%); 79 social sciences teachers (15%); 76 teachers in arts or physical education (14,4%); 60 of teachers in vocational education (11,1%); and 40 teachers in national curriculum subjects (7,6%). No data are available for the total population of teachers in the Netherlands.

Measures of professional development activity

To measure the dependent variable, a qualitative study has been carried out to get insight into the range of activities teachers perform in the workplace that they consider to provoke learning (Kwakman, 1999). All those activities were categorized within the four categories of keeping up, experimenting, reflecting, and collaborating. From this range of activities only those activities that do not belong to the teaching task itself were selected to include in the questionnaire. A further restriction was made as only collaborative activities that teachers perform within their own schools were selected. Eventually, this variable was measured by twenty-one items. Teachers were asked to state how often they performed each professional activity on a 4-point scale (1 = hardly ever, 2 = sometimes, 3 = fairly often, 4 = often).

Measures of independent variables

Years of experience. This variable was measured by asking teachers how many years they were working as a teacher. As a lot of older women are entering the teaching profession nowadays, experience is considered a better measure than age.

Professional attitudes. These were measured by means of 12 items reflecting teachers' responsibilities with regard to attaining new pedagogical goals, improving professional performance and participating at the school level. Teachers were asked to indicate to what extent they agreed with bearing these responsibilities on a 4-point scale (1 = disagree, 2 = slightly disagree, 3 = slightly agree, 4 = agree).

Appraisals. These elicit the meaning attached to professional development activities. As meaning is situation-specific in nature, this was measured for each professional development activity separately. Teachers were asked to state the meaningfulness and feasibility of each activity on a 4-point scale ranging from 'not meaningful' to 'very meaningful' and from 'not feasible' to 'very well feasible'

Job stress. This variable was measured by means of seven items derived from the Dutch Version of the Maslach Burnout Inventory for Teachers (Schaufeli, Daamen & Van Mierlo, 1994). Burnout is a metaphor for mental strain, which exists of three different components: emotional exhaustion, depersonalization, and negative feelings about one's competence. In accordance with research findings and reliability of scales, items were selected only from the scales emotional exhaustion and loss of personal accomplishment. Emotional exhaustion refers to the extent in which teachers feel emotionally over-extended whereas loss of personal accomplishment refers to a decline of feelings of competence and successful achievement in the job. All seven items are scored on a 7-point scale: 0 = never, 1= hardly ever, 2 = seldom, 3 = sometimes, 4 = often, 5 = nearly always, 6 = always.

Job demands. Because of the discussion about different types of job demands in reviews of the Karasek model, three types of job demands were included in this research (Söderfeldt et al., 1996). First, pressure of work referring to quantitative demanding aspects such as the pace of work and workload. Second, emotional demands referring to the extent in which the job requires emotional investment. Third, job variety measuring the availability of learning opportunities as well as the amount of diversity the work offers. All three variables were measured by means of twenty items derived from a questionnaire of the Dutch Institute of Working Conditions (VBBA; Van Veldhoven & Meijman, 1994). Teachers were asked to indicate to what extent each item was relevant to their job on a 4-point scale (rating from 1 'hardly ever' to 4 'always').

Job control. As the meaning of the control variable in the Karasek model is debated (e.g. Ganster, 1989), two different aspects of control were included in this research: autonomy and participation. Autonomy refers to teachers' opportunity to determine different task related characteristics such as the pace of work, the method, and work order (Firestone & Pennell, 1993). Participation refers to the

influence a teacher has over the working environment and to opportunities to take part in decision making (Firestone & Pennell, 1993). Both variables were measured with fourteen items derived from the VBBA.

Social support. Support refers to the total amount of helpful social interaction of colleagues and staff that is available within the work context (Karasek & Theorell, 1990). Especially instrumental and social-emotional aspects are of importance. Management support and collegial support were measured each by four 4-point items derived from a Dutch questionnaire on organizational stress (VOS-D; Bergers et al., 1986).

Developmental press. This variable was measured by 4 items referring to the four categories of professional development activities. Teachers were asked to state on a 4-point scale (rating from 1 'hardly ever' to 4 'always') to what extent their school stimulated them to keep up, experiment, reflect, and collaborate.

Data Analysis

Analysis was first directed at constructing scales. Therefore, factorial analyses (Principal Component Analysis) were executed. For each scale, descriptive statistics were calculated. Next multiple regression analysis was used to reveal relationships between independent variables and performance of professional development activities. First, a hierarchical regression analysis was conducted to reduce the number of factors as far as possible. Only those factors that accounted significantly to the amount of explained variance were included in the final regression analysis.

Results

Descriptive statistics

With regard to the dependent variable results of factorial analysis (oblique rotation) on professional development activities yielded three different factors referring to different aspects of professional behavior. The amount of explained variance these three factors accounted for was 40,5%. Three items had to be removed. The first factor consists of six activities that are all executed collaboratively and are related to extracurricular and organizational tasks. So, this factor was called task extension. The second factor includes seven items referring to activities that are performed individually or in interaction with students. As all seven activities are mainly aimed at keeping up with new developments and improving lessons this factor was named professional improvement. The third factor comprises of five professional activities which all refer to practical instructional work related to preparing and delivering lessons. Therefore, this factor was labeled instructional practice (Kwakman, 1999).

Concerning independent variables, factor analysis yielded a large number of factors due to the multidimensionality of the variables as expected. Although some items had to be removed in order to reach an acceptable factor structure, a scale could be constructed for every original variable. Only for 'feasibility' appraisals factor analysis revealed two factors in stead of one. 'Feasibility' fell apart in 'feasibility of task extension activities' and in 'feasibility of innovative activities'. We use this new term 'innovative activities' because the activities within this scale refer both to 'professional improvement' as well as to 'instructional practice'.

Table 1 shows the descriptive statistics for the three types of professional activity and for all other scales representing independent factors.

Table 1

Descriptive statistics of scales

	M	*Range*	*SD*	*Alpha*	*Number of items*
Task extension	2.29	1 - 4	.58	.77	6
Professional improvement	2.43	1 - 4	.46	.65	7
Instructional practice	2.25	1 - 4	.49	.58	5
Professional attitudes	3.11	1 - 4	.52	.75	6
Feasibility of task extension	2.70	1 - 4	.62	.78	6
Feasibility of innovative activities	2.69	1 - 4	.54	.66	6
Meaningfulness of activities	3.26	1 - 4	.42	.81	13
Loss of personal accomplishment	2.20	0 - 6	.68	.72	4
Emotional exhaustion	2.68	0 - 6	1.08	.82	3
Pressure of work	2.41	1 - 4	.56	.87	7
Emotional demands	2.12	1 - 4	.49	.64	3
Job variety	2.66	1 - 4	.52	.82	7
Autonomy	2.65	1 - 4	.54	.73	5
Participation	2.38	1 - 4	.55	.76	5
Management support	2.95	1 - 4	.69	.87	5
Collegial support	3.21	1 - 4	.55	.79	4
Developmental press	2.57	1 - 4	.54	.66	5

Performance of activities

The frequency in which each professional development activity is performed is shown in Table 2. The activities are ranged from low performance to high performance. For each professional development activity the corresponding factor is also indicated: (te): task extension, (pi): professional improvement, and (ip): instructional practice.

Table 2

Mean scores on professional development activities (1 = hardly ever, 4 = often)

Collegial classroom observation	1.22
Prepare lessons with colleagues (ip)	1.69
Ask pupils feedback (pi)	1.84
Use colleagues' materials in own lessons (ip)	2.01
Support colleagues in teaching problems (te)	2.09
Give opinion to school management (te)	2.10
Read professional journals (pi)	2.11
Participate in pupil counseling policy (te)	2.17
Join a committee at the school (te)	2.34
Experiment with new teaching methods (pi)	2.38
Discuss about educational improvement (te)	2.39
Make agreements about the way of teaching (ip)	2.43
Share teaching problems with colleagues	2.47
Adapt way of teaching to pupils' needs (pi)	2.49
Discuss way of teaching with colleagues (ip)	2.51
Reflect individually on a lesson	2.55
Construct teaching materials (ip)	2.59
Share ideas about education with colleagues (te)	2.63
Study teaching manuals (pi)	2.64
Study subject matter literature (pi)	2.74
Teach student study skills (pi)	2.83

Regression results

At first correlations between predictor variables and three types of professional development activity are shown in Table 3.

Table 3

Correlations between independent variables and three types of professional development activity

	Task extension	Professional improvement	Instructional practice
Professional attitudes	.31*	.40*	.23*
Feasibility of task extension	.50*	.18*	.16*
Feasibility of innovative activities	.16*	.44*	.32*
Meaningfulness of activities	.40*	.42*	.36*
Loss of personal accomplishment	-.28*	-.28*	-.10*
Emotional exhaustion	-.05	-.13*	-.06
Pressure of work	.15*	.02	.05
Emotional demands	.20*	.16*	.15*
Job variety	.26*	.26*	.17*
Autonomy	.08	.08	.04
Participation	.27*	.12*	.11*
Management support	.11*	.02	.09*
Collegial support	.12*	.05	.21*
Developmental press	.25*	.20*	.18*

* significant correlation ($p < .05$, two-tailed)

Next, regression analyses were conducted for each type of professional development activity. Results were controlled for gender and subject matter (dummy variables). The standardized significant beta weights and amount of explained variances of independent factors on three types of professional development activities are presented in Table 4.

Table 4

Significant beta weights and explained variances of simultaneous regression analysis for variables predicting three types of professional development activities

	Task extension	Professional improvement	Instructional practice
Gender (1 = female)	-.07		
Subject matter (1 = arts / physical education)	-.10		
Subject matter (1 = science)			-.22
Subject matter (1 = languages)			-.17
Subject matter (1 = social sciences)			-.16
Years of experience	.29		
Professional attitudes	.12	.20	
Feasibility of task extension activities	.41	-.13	-.10
Feasibility of innovative activities	-.13	.36	.24
Meaningfulness of activities	.20	.22	.26
Loss of personal accomplishment	-.16	-.18	
Emotional exhaustion			
Pressure of work	.10		.11
Emotional demands	.09	.14	.10
Job variety	.16		
Autonomy			
Participation			
Management support		-.16	
Collegial support			.17
Developmental press		.12	.09
R^2	.49	.40	.29

Noteworthy is first that one of the stress variables 'emotional exhaustion' and both task characteristics 'autonomy' and 'participation' show no direct effects on any of the dependent variables. All other factors assert an effect on at least one type of professional development activity. Secondly, it is remarked that in comparison with the correlation analysis, regression analysis in which joint effects are determined, reduces the number of variables that appeared to be significant.

Regarding the first type of professional activity 'task extension', 11 variables show some significant direct effects whereas the amount of variance accounted for by the predictor variables is reasonable high. Concerning the second type of 'professional improvement' 8 variables proved to be significant whereas the amount of explained variance is also rather high. The third type of 'instructional practice' is also affected by 8 variables although the proportion of explained variance is much smaller.

With exception of the negative effects of 'feasibility' appraisals and 'management support' the direction of effects is in concurrence with results from the correlation analysis. Closer examination of those negative effects indicated that this may be due to a suppressor effect caused by high correlations among predictor variables. So, these effects have to be neglected. All other negative effects are not surprising. Effects of gender and subject matter are attributed to the way dummy variables are scored, whereas the negative effect of 'loss of personal accomplishment' only points out that a larger loss of accomplishment (thus more stress) relates to a lower frequency of task extension and professional improvement activities.

Conclusions and discussion

Several important findings that contribute to the understanding of teachers' professional development activity resulted from this study. First, the range of professional development activities is reduced to three types of activities referring to different aspects of professional behavior. Secondly, the study results suggest that de frequencies in which various professional development activities are performed differ to a large extent. Striking is that the frequency of activities giving rise to feedback or reflection, and activities that demand joint work is rather low whereas activities concerning professional reading, 'chatting' with colleagues, or improving lessons are most frequently performed.

Thirdly, the study provides empirical evidence for a number of variables that predict the frequency of professional development activities. Examination of the beta weights for the significant predictor variables indicates which variables accounted for significant variance in professional development activity. It is concluded that different combinations of independent variables account for this variance in each type of activity. Only one variable ('meaningfulness of activities') asserts an effect on all three types of activities. Three variables did not assert any effect. Thus, all other variables are somehow related to performance of professional activities. But from these variables, individual characteristics appear to be more significant in predicting professional development activities than characteristics of the task and work environment. Although characteristics of the task and work environment show effects, these effects are much smaller than effects of individual factors.

Besides, although these variables jointly account for a significant amount of variance in all three types, it may be concluded that the conceptual model explains best for 'task extension' and least for 'instructional practice'. This implies that other variables have to be added to the model in order to raise the amount of explained variance. But as this study points out, these variables have to be studied in connection to a specific type of professional activity only. Eventually, further research has to answer the question if it would be more appropriate to built different conceptual models for different types of professional activities.

What do these results contribute to our understanding of teacher learning? This study reveals great discrepancies between theory and practice in opportunities for professional development for secondary schoolteachers. First, theory stresses the importance of a large range of activities to help teachers develop professionally. However, this research reveals that the frequency in which some activities are performed is rather disappointing considering the high value that is attached to them. So, the range of activities is more restricted in practice. Secondly, the minor effects of task and work environment variables are not in accordance with the significant role school improvement theory adheres to the school environment in enhancing teacher learning. This study shows that performance of professional development activities depend to a large extent on individual characteristics of teachers.

Both discrepancies raise serious questions about the availability and opportunity for professional development in secondary schools. As schools seem to depend on self-directed activities to occur spontaneously we may ask if this is an appropriate policy as some activities appeared difficult to perform on one's own initiative. We may also question if schools are successful in creating sufficient and various learning opportunities for teachers considering these empirical results. The overall conclusion is that schools are no places where teachers learn in a manner consistent with what is viewed as desirable or necessary. Nevertheless, in light of the demands of the current reform, teacher learning is a crucial factor in the implementation and innovation process. Therefore, it is strongly advised to design powerful interventions that raise learning opportunities and create favorable conditions to teachers' learning. An important topic for further research will be what kind of interventions may be effective in stimulating teacher learning.

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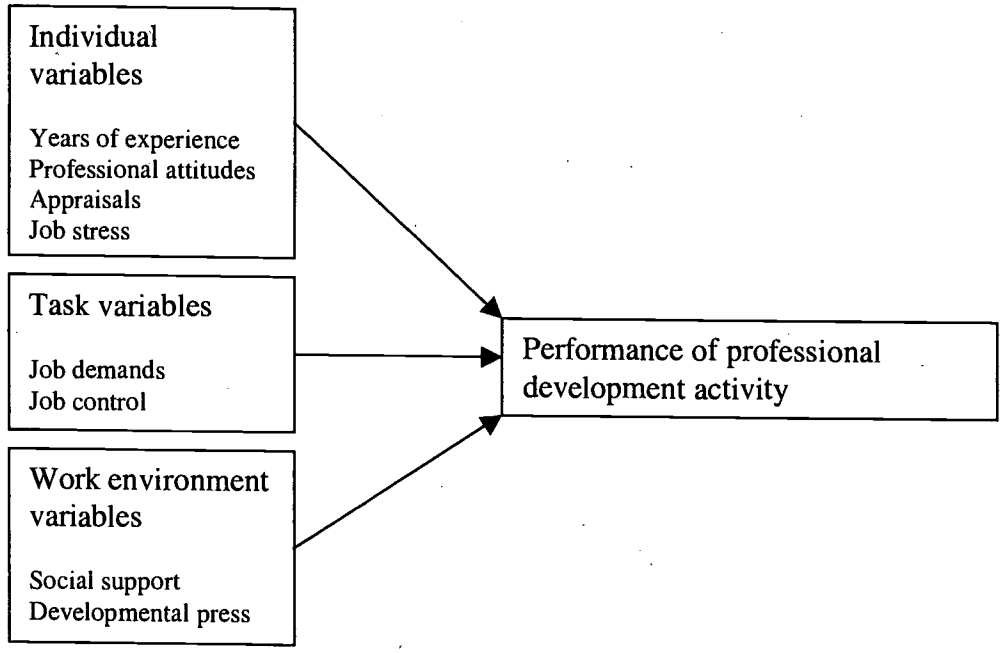

Figure 1. Conceptual model of professional development activity

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