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Learning in the Workplace: New Theory and Practice in Teacher Education

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Abstract: Teacher education is in a state of change. There is a new focus on professional competence, including the competence for further development and learning, conceived of as workplace learning. Teacher shortages put pressure on the development of alternative routes to teaching. The arrival of prospective teachers with experience and qualifications in other areas than education requires adaptive programs, with a greater emphasis on professional learning in school. It is argued that promoting professional workplace learning asks for a conceptual clarification, based on new theory of learning and concepts of professionalism. A definition of professional learning is proposed. Some examples of new practice in teacher education are discussed.

Keywords: professional learning, workplace learning, teacher education, alternative routes

Developments in the teaching profession

Different forces exert pressure on the teaching profession and teacher education. First, educational innovations pose new professional demands, especially concerning teaching for active learning of students, stimulating self-directed learning, collaborative learning, and generally preparing students for lifelong learning (Bolhuis, 2000). These innovations are required in different types and levels of education, from primary school to higher education, from general to professional education. Consequently, teachers in all types of education are required to reconceptualize their role, and teacher education is required to change contents and methods in order to prepare student teachers for these new demands.

Second, new concepts of professionalism are intruding the teaching profession as well as other professions. The question whether teaching can fully be considered a profession in the traditional sense has been long debated. We are not going into this debate here. Shifts in concepts of professionalism will change the debate. From the point of view of what is desirable, education should certainly strive to be professional in the new sense. Traditionally, professions are characterized (sociologically) by individual autonomy. Often professionals were supposed to be trustworthy by virtue of having the appropriate education, belonging to the profession, and being a member of professional associations. Today, professional activity is demanding much more teamwork. Accountability and chain responsibility are serious claims. And professionals are required to renew their professional expertise much more profoundly and continually than ever before. These new trends can be noted in several professional fields, e.g. law, medicine (Wilkerson & Irby, 1998) as well as in teaching.

These changes in professionalism imply a third point, namely new ideas about professional learning, in the context of a (professional) learning organization. The demand of lifelong learning does not only require innovations in education but also applies to the teaching profession itself. There is a new focus on professional competence in the teaching profession, including the competence for further development and learning. In the Netherlands an official document on the competences required of beginning teachers is accepted as directive in teacher education and (re)training (Ministerie van Onderwijs, 1999b). The competence for lifelong learning however, is not restricted to study skills, but explicitly connected to collegial learning and teamwork. Professional competence is not primarily

regarded as mastering academic knowledge. The criterion of competence is in the professional activity. The learning theory on which the new concepts of professional learning and the learning organization are based is discussed below.

Fourth, shortages in the labor market force the educational field and the government to look for unconventional solutions. The shortages in teacher supply are growing, and will be getting worse in the coming years. The Dutch government, in accordance with the trade unions and employers in education, is supporting several measures to stimulate the (re-)entry in teaching (Ministerie van Onderwijs, 1999a, 2000). In the context of this article we will focus on some of these measures in secondary education. The >re-entry= measure is directed at attracting men and women who at some time completed teacher education, and who have perhaps been teaching, but are not in the teaching profession now. So-called refresher courses are offered to help them into teaching again, or perhaps for the first time. Another measure is directed at attracting men and women who completed higher education in a field which corresponds to a school subject, who may have worked in the field, and now want to change to teaching. Alternative teacher education routes are being developed to accommodate their so-called >side-entry=. A special side-entry experiment was started with artisans (metal and electro) who have an intermediate professional level, but no higher education, and who will be teaching their craft in lower secondary vocational education.

Finally, organizational developments in higher education play a part as well. Traditionally the Netherlands knows two different institutes of teacher education. The university-related institutes prepare first level teachers in a post academic one year= master-course in education, on the condition that students a) have completed a master in some field that matches a school subject, and b) completed a two or three months teacher orientation program during their master. The other type is the teacher college within an institute of higher professional education. These colleges prepare second level teachers in a four-year program in which the school subject and teacher preparation are combined. Both of these teacher education institutes also offer all kinds of training and support for schools on a commercial basis, often in a (semi-) independent institute. In recent years both types of teacher education institutes are developing forms of cooperation, and sometimes present themselves as one institute.

New theory of professional learning in the workplace

Competence-based learning

Teaching for competence is standing out as the most important goal of professional education. In the >Entry-competences for teachers in secondary education= (Ministerie van Onderwijs, 1999b) competence is mostly defined in terms of professional activities and related to teaching contexts. Also, the competence for professional, collegial learning is explicitly included. The entry competence is the basis for further professional development. Nowadays this is generally considered characteristic of education for competence. A Education for competence is education in which the trade knowledge is integrated with trade skills, and which is showing similarities with the future professional practice. It is education that focuses more on application and integration of the trade knowledge and stimulates the learning competence@ (Mulder, 2000). The proof of competence is to be found in the professional activity in the authentic environment. This implies the need for a different way of teaching in professional education and also for a different way of assessing learning results (Shlusmans, Slotman, Nagtegaal, & Kinkhorst, 1999). In alternative routes to teaching this need is even more urgent, because the assessment should include competencies that were acquired elsewhere (Klarus, 1998). The arrival of teachers-to-be with experience and qualifications in other areas than education asks for new ways of assessment and learning, with a greater emphasis on workplace learning.

Spontaneous learning in the workplace

Professional learning is increasingly considered as learning in the workplace. The most obvious reason for this is the recognition that people acquire much of their professional competence in practice, and keep learning through their professional activities. This is why professional education is trying to find ways to incorporate learning in practice. This trend sometimes looks much like a new appreciation of the importance of learning skills in practice. There is more to the concept of workplace learning however. Important elements are the recognition of spontaneous learning and the influence of the school culture as such. The important point is that spontaneous learning and the school culture do not necessarily result in the best professional practice. Spontaneous learning includes learning by experience and by social interaction as naturally occurring ways of learning. Teachers learn by their day-to-day experience with their students, parents, colleagues, they learn by the way colleagues, management, parents and others talk about students, teaching and other school matters. They learn continuously, also when they are not aware of their own learning. Their professional activities, their practice in teaching, their way of communicating with students, etcetera, are shaped continually by this learning. Practices that are rewarding are continued, other practices that are frustrated or rejected fade.

Much professional education today is embracing experiential learning. It appears however that the focus is really on learning by reflection on experience. This is often inspired by Kolb and Schön (Fenwick, 2000; Kolb, 1984; Schön, 1987). This may be a valuable goal to pursue, but when experiential learning is treated as if experience by nature includes reflection one may misperceive and underestimate the results of experiential learning. Learning by direct experience happens implicitly by being immersed and participating in the social-material environment and thus experiencing what kind of world this is, atmosphere and habits in the organization, etcetera. There is also a more active form of learning by doing: trial and error, experimentation, problem-solving, hands-on learning. Then there is the (seemingly) more passive form of immersion and exposure, experiencing what the environment is like. This kind of learning can be quite overwhelming and pervasive, especially when we want or need to be part of our environment.

Social learning includes all kinds of daily interactions and communications as they go on daily in every human context, everyday informal conversations as well as organized way of collaborating. When learning by participating in social interaction is to be used on purpose, one may want to differentiate several forms of social interaction and their purpose:

- S learning by observing models (observational learning);
- S asking questions: getting more information;
- S discussion: getting clear, evaluate and/or defend differences in opinion;
- S dialogue: trying to find (better) solutions together;
- S brainstorm: trying to generate as many approaches to a problem;
- S acting together, doing a job together to reach a shared goal.

Socialization comprises experiential learning (immersion and learning by doing), as well as social learning. Who serves as a positive model depends on identification with >important others=: those who are attractive, powerful, and trustworthy. But, you may also learn by negative models: the ones you don=t want to follow. In secondary socialization, as is the case when first entering a professional context, learners usually have acquired ideas about the profession already. These mental models or beliefs influence the appreciation of the professional context and models they encounter.

Spontaneous learning in professional practice is important because a) it happens anyway, whether it is wanted or not, b) it is effecting practice directly and pervasively, and c) people are not very aware of the process and effects of spontaneous learning, which results in inflexible learning results. Spontaneous learning may lead to greater expertise, but also to negative habits in teaching. The environment heavily influences the effects of spontaneous

learning. School organizations make up the environment for learning, not only for students, but also for teachers, staff and management. When thinking of staff development and training one should include the school=s subculture as a starting point.

Deliberate learning in the workplace

The recognition of the power and nature of spontaneous learning is a starting point for learning in a more conscious and deliberate way. Learning by experience and social interaction may be organized in better ways so as to learn in desirable ways (Bolhuis & Simons, 1999). This asks for reflection on the learning context, processes and results. The essential activity in learning by reflective, critical thinking is asking questions. This may concern questions to evaluate what was learned - or could be learned more - by experiences (observation and action), by social interaction, or by processing theory, questions evaluating what led to the learning effects, the context, the sources of information, the sources, and relations to other information. Reflective questions may be asked to relate new information to prior knowledge: critical examination of one=s own frame of reference, one=s own assumptions, mental models, ideas, ways of thinking, habits, emotions, attitudes. Also questions may pertain to what hinders or motivates learning. Asking these kind of questions requires personal involvement and commitment. They are related to cognition as well as to emotions that have to do with becoming a professional.

Academic education is traditionally dominated by learning by theory, by processing abstract, generalized and preferably scientific information. This model is often still influential in professional training. The problems in learning by theory are well documented. Learning from theory is susceptible to misunderstanding; misconceptions are easily acquired. The learner may not connect the information to >the real world=, to the context where theoretical knowledge should get meaning. There is no transfer, and only inert knowledge is acquired. There is no automatic relation between conceptual knowledge (understanding) and the practical situation. Theoretical knowledge is selected, structured and organized. Using theoretical knowledge requires that the learner can do the selecting, structuring and organizing procedure in many different situations. Too much learning from theory kills motivation, especially when a student=s source of motivation is the professional practice. To compensate for these problems and still profit from theory learning it is recommended to combine and integrate theory and spontaneous learning in a critical reflective way.

Toward a standard of professional learning

Promoting professional learning asks for a conceptual clarification, discerning spontaneous learning (by experience and social interaction) from more deliberate ways of learning (by processing theory and by reflective thinking), and focusing on individual as well as collaborative learning. Just like much other professional work nowadays teaching is done in teams or other forms of collaboration. The goal should be improvement of the professional practice of the individual as well as groups (teams, organizations), based on accountability. Professional learning can be described as a desired way of combining and integrating the spontaneous learning and theoretical learning in a critical reflective way.

The following definition is proposed (Bolhuis & Doornbos, 2000):

>Professional learning is:

- individually and collaboratively
- consciously and critically thinking about, organizing and integrating
- experiential and social ways of learning as well as theory learning,
- directed toward the improvement of professional practice and the context of practice=.

Recognition of the school=s subculture, as an important influence on teachers= learning, also implies that the school=s culture is an important issue of teachers= and management=s

professional responsibility in the school. The concept of the school as a learning organization should include the school=s subculture.

New practice in teacher education

Most institutes already knew part-time versions of the regular program. The part-time routes give the opportunity to follow a teacher education while fulfilling other responsibilities in work and/or family. It is based on the regular program though dispensations may be granted. In response to the teacher shortage and new ideas about professional learning teacher education institutes are organizing several alternative routes to teaching. Side-entry routes are organized for men and women who completed higher education in a field which corresponds to a school subject, may have worked in the field, and now want to change to teaching. There are two variants of side-entry. Part of this group applies for a teaching job directly. When a >suitability investigation=, concerning prior education and (work and other) experience results in a positive advice, the applicant is submitted to an assessment procedure by a teacher education institute. This procedure has to point out whether the candidate a) is already sufficiently competent to start teaching right away, b) needs to follow teacher education first, perhaps with some dispensations, or c) does not seem suitable for entering the teaching profession. The assessment has to result in demands for an additional teacher education program for those who are appointed as a teacher right away. They are supposed to be able to complete this program in two years, while teaching as well. This new entry in the teaching profession is regulated in the interim law on side-entry to teaching.

Beside this >side-entry to teaching= there is the >side-entry in teacher education= for those who need or choose to follow teacher education first. Current research on this side-entry route will be reported elsewhere. Below, the special experiment of >side-entry to teaching= for artisans who have started teaching in preparatory vocational schools is discussed. Next the >re-entry route= is discussed, based on research done in 2000. This route aims at those who are formally qualified to teach but for whatever reason left or never got into a teaching job. The refresher course should help them to feel confident and motivated to start teaching (again), giving the opportunity to renew their knowledge and skills where necessary.

The main questions in discussing these examples of new practice in teacher education concern: the entry of new student groups with characteristics that are different from regular students, adoptions of the program, and in particular the role of workplace learning.

Side-entry of artisans as teachers in preparatory vocational schools

Vocational (technical) schools suffer from severe teacher shortages, especially in the vocational subjects. The Federation of Trade Unions, the Employers' Federation as well as the Trade Unions in the Metal and Electro branch, the Organization of Small and Medium sized Enterprises, and the Department of Education cooperated to start a side-entry experiment for artisans in the metal branch who could be interested in a part-time career change toward teaching. They kept working part-time in their former job, and started teaching while following the side-entry teacher education in the rest of the week. More side-entry routes in other vocational branches are planned following the experiment in the metal field. The Department of Education asked researchers for advice on workplace learning as the central focus in this type of alternative teacher education program (Bolhuis & Doornbos, 2000).

Some innovations are going on in preparatory vocational education. First, this type of education is merged with general secondary education, with the intent to focus more on the preparatory nature. This is rather problematic. The schools have a student population with higher percentages of ethnic minority and lower SES students than other schools. Second, changes in the vocational field result in changes in the demands for the final examinations.

This asks for educational innovations in the vocational subjects, in content and in the approach to learning. Students also have to learn to work more independently. The new practical classrooms are rather large and students work on tasks much on their own, while two or more teachers are around to guide the process. Some schools are ahead of others in realizing innovations.

The first phase of the side-entry route had already started when the researchers were called in. Two researchers attended several meetings of the teacher educators and the student-teachers (in which they discussed basic principles of teaching, use of the portfolio, practiced micro-teaching, etcetera), and visited some of the training schools (where they attended practical lessons, and talked with teacher coaches as well as school management). Also they had discussions with the teacher educators about the consequences of workplace learning and their students' special needs.

The general differences between the traditional model of teacher education and the side-entry routes are summarized below.

Workplace learning model in side-entry routes	Traditional model of teacher education
<ol style="list-style-type: none"> 1. Entry on the basis of assessment 2. Tailored learning route 3. Learning while working, school practice and educational theory intertwined 4. Already acquired competencies and work experience lead to learning questions 5. Teacher coaches have a central role 6. Side-entry teachers have teaching responsibilities from the beginning 7. Side-entry teachers bring field experience and contacts with enterprises in the field 8. Teacher certificate based on assessment (with a focus on practice) 	<ol style="list-style-type: none"> 1. Entry on the basis of a school diploma 2. Full curriculum for all students 3. From educational theory to (application in) school practice 4. Teacher education institute organizes learning (contents, tasks, etc.) 5. Teacher educators have a central role 6. Students are supervised, gradually getting more responsibilities 7. Out-dated field expertise and a lack of contact with enterprises in the field 8. Teacher certificate on the basis of traditional examinations

However, the side-entry of artisans asks for adaptations. The assessment that was developed for candidates with a higher education qualification in a field that corresponds with a general school subject was not adequate for this group. Their competencies as artisans are less verbal in nature. They are less familiar with the type of language and verbal expressiveness that is assumed when assessment candidates are asked to fill their portfolio. The solution so far was to take a two months orientation period for the candidates to get acquainted with their prospective job and for working on a portfolio that could serve as a start. The question what teacher competences should be the criterion presents another problem in the assessment. The official document on teacher competences focuses on general aspects of teaching but does not include the special requirements of particular school subjects. The competences are not very specific about the coaching role that teachers in practical subjects have in the preparatory vocational schools. Moreover the examination programs of the practical subjects were changed recently.

These side-entry teachers are very motivated. They regard this opportunity as an important career step. Some have experience in coaching trainees and/or new colleagues in their job or in training young people in sport associations. Others have no such experience and need more time to learn their new role. They all have to get to know the kind of students they meet in the preparatory vocational schools. The side-entry teachers have an important advantage in their recent vocational experience. The teacher coaches have an opportunity to learn from their new colleagues. This was e.g. exploited by asking the side-entry teachers to organize an excursion for students and/or colleagues to their enterprise. More contacts in the

field may also make it easier for preparatory vocational schools to organize the trainee periods for their students.

After the orientation period another two months were spent on building the portfolio, practicing professional skills (educational and vocational), organizing the excursion, and progress discussions with teacher educators. The structure of the rest of the two year (maximum) program is: one day per week to work-and-learn in the school, one day per fortnight in the institute to work on common themes, one day per fortnight either in school or in the institute to work on self-chosen themes. A help desk and individual training possibilities are available in the institute. Based on the portfolio students are encouraged to think about their personal learning needs and keep track of how to fulfill these needs. Several instruments were devised to help the student teachers in professional learning.

Since workplace learning is central to the program, the teacher coaches in the school have an important role. They are used to young trainees, but not to new colleagues, who have vocational expertise, are adult, and need to acquire educational expertise. Therefore training for coaches was started to help them get acquainted with their new role.

The re-entry-route

The re-entry-route consists of three phases: a) the acquisition and selection, b) the refresher course, c) mediation and placement (getting a job). The National Educational Employment Service asked (the commercial part of) the teacher education institutes to develop refresher courses. The regional employment agencies, teacher education institutes and secondary schools in a region need to cooperate to realize this re-entry-route. When the research project started, these re-entry-routes were carried out in four regions; two more regions were preparing to do so.

Method

We asked for the relevant documents in all regions, from 1) the employment agencies that were responsible for acquisition and selection of candidates as well as for mediation, and 2) teacher education institutes that were involved with refresher-courses. One of the four regions had already started some research on their own project. We received the preliminary results. All documents were analyzed; the information was also used to prepare the interviews.

Semi-structured interviews were held in three regions of the country, with employment consultants (3), students in refresher courses (11), teacher educators (4), teacher-coaches (5) and school-managers (3). The interviewees, with the exception of the students, received the questions beforehand. The interviews were held by telephone, and recorded for analysis.

Results

The procedure of *acquisition and selection* posed several problems. The employment agencies select candidates on formal criteria in the first place: candidates have to be unemployed, and in the possession a teacher qualification in a school subject that was looked for because of a teacher shortage, sometimes also being out of teaching for at least some years. These criteria are not always as clear as they seem. There is little contact between schools and the employment agency about the question what teachers are needed in the region. When schools offer a job to a re-entry teacher, can they still follow the re-entry course? Second, the employment agency also applies more subjective criteria like motivation, and social skills, in estimating the candidate=s chances to succeed as a teacher. Next teacher education institutes have an intake meeting with candidates, also estimating chances of success and what kind of assistance in the refresher course candidates will need. The institutes however do not have the time (money) and/or the experience to do a more elaborate assessment-procedure.

What are *student characteristics*? As was expected, the students are a very heterogeneous group, which means that the kind of problems and uncertainties they bring with them are also very diverse. The number of years since they were teaching or completed their teacher education varies from a couple of years to more than twenty years. Some have an elaborate experience in teaching (more than ten years), some have only a few years, and a growing number had no teaching experience at all. At the time they left teacher education teaching jobs were scarce, so they looked for other possibilities. Their experience in work is very diverse, e.g. carpentry, volunteer work, computer consultant, freelance editor, student counselor. A majority of students are women, who often want to combine care for their children with teaching. They tend to regard their experience with children as an advantage for going into teaching (again). Teacher educators and coaches also mentioned this experience as advantageous to re-enter teaching. The teacher coaches who are able to compare the students to regular student teachers are very appreciative. They mention that these adult students have more life experience, they may need an update on today=s education and students, but they are more independent, pose more adequate questions, and are faster in taking up their role as a teacher in class as well as in the school organization.

What about the *structure and content* of the refresher courses? The content of the courses is variable, but generally focuses on main changes in education and teaching, e.g. the shifting focus toward learning to learn, use of ict, a multicultural student population, new requirements for final examinations in secondary education, changes in the exams or didactic approaches regarding specific school subjects, professional learning in the school. Most courses take about three to four months. This time is divided in rather diverse ways between time spent in the teacher education institute, independent study or lesson preparation, and the practical training in school. Most courses make practical training the dominant part, taking at least twice or three times as much time as the time spent in teacher education, and organized parallel, so that workplace experience can be central in the course at the institute. One may conclude that so far courses are different in their contents as well as their structure, but usually workplace learning is the main focus.

How *adaptive* are refresher courses to the diversity of students? The teacher education institutes receive some information about the candidates from the employment agency, and they have their own intake conversation with all candidates. This information is not (yet) used systematically to adapt the course to student needs. The institutes do employ several adaptive strategies in the refresher courses however. Students are asked to compose their own personal learning program, based on an analysis of their strong and weak points. Personal logs or diaries are used to structure reflection on experiences in school. In portfolio=s students keep track of their learning progress. Students are offered a choice of several elements in the teacher education program (e.g. extra ict) and in counseling or advice. An extra reason for offering different choices is the fact that teaching in secondary education concerns different school subjects in which re-entering teachers may need to refresh their knowledge. Small group (and sometimes individual) coaching is another strategy that is used to stimulate learning from personal experience, adapted to personal needs. Coaching is also considered to prepare for professional learning: supervision as well as intervision in collaborative, collegial learning.

Are refresher courses based on and preparing for *professional workplace learning*? If workplace learning is central in a refresher course, one might expect that the teacher education institute and the teacher coach are collaborating. In some cases however students and teacher coaches had complaints about the lack of communication. Also students were dissatisfied with the discrepancy between what was learned in the teacher education institute and their school activities. They would appreciate more practice-related topics, meaning related to their own practice in school. Some students were disappointed that schools were much less innovative then they had expected based on new insights gained during the meetings at the teacher education institute. Teacher educators also mentioned the problem of

training schools that were rather conservative, and in fact below their standards of teaching, not to speak of standards concerning a professional learning environment.

We found that students in refresher courses get a school for training in different ways. Some teacher education institutes take care of training schools by contacting the same schools they use in regular teacher education. An advantage is that these schools have prepared teacher coaches. A disadvantage is that these schools usually do not have vacancies, so they do not offer a job to the re-entering teacher. Sometimes students (have to) find their own school, and sometimes the employment agency is in contact with schools that want to have students from these courses. Here the advantage and disadvantage are just the other way around. Most schools spend little time and attention to beginning teachers and/or team learning. One school manager said to prefer appointing a teacher after a refresher course. Because in that case the school did not have the trouble of showing the ropes. In focusing on workplace learning teacher educators have to deal with schools that differ in realizing their new role (that is providing for professional learning in the workplace). A majority of the students indicate that they hope for and would appreciate support from colleagues and management when they start teaching again.

Conclusions and discussion

New theory and new practice are developing in interaction. This state of change brings along challenges as well as dilemmas.

The co-ordination and new roles of the schools and the teacher education institutes are developing (partly) but are not yet well established. Teacher education institutes are sometimes ahead of schools and sometimes schools are ahead of teacher education in providing a stimulating professional learning environment. When workplace learning becomes the central focus schools have to learn this new role, and teacher education institutes have to experiment with their new role in supporting professional learning in the school environment. A general conclusion is that "The workplace as a place to learn requires a lot more attention than it is getting now." (Beijaard, Verloop, Wubbels, & Feiman-Nemser, 2000)

The teacher shortage brings other partners in the field that teacher education institutes have to deal with. These organizations (such as employment agencies) have a different approach to the problem and consequent expectations of teacher education. The current state of affairs seems to cause many problems of confusion, misunderstanding and resulting irritation. On the other hand very promising new partnerships of different organizations are successfully supporting alternative routes to teaching.

Teacher education institutes are experimenting with new programs and instruments to adapt to new student-groups. The development of new approaches and instruments needs time and evaluative research, but also more attention for teacher educators who have to invent their new role. It is remarkable that the professionalization of teacher educators is hardly ever discussed (Korthagen, Klaassens, & Russell, 2000).

The teacher shortage as a labor market problem is getting worse. Since the labor market is beginning to offer many more vacancies, those who look for a job have more choice. Schools with vacancies need to be intent of the attractiveness of the workplace they are offering professionals. This is even more urgent because the problem of teacher shortage is two-sided. Not only the entry-numbers count, but also the numbers of teachers who decide to leave their job. Schools that suffer from vacancies will often also suffer from time pressure, because the remaining teachers try to make up for the shortage. This may lead to less time for creating a collaborative and supportive environment, while one cluster of reasons for leaving may be the lack of support in schools that do not succeed in offering the support and collegiality that make up a professional learning environment for teachers.

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