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Supporting beginning teachers in urban environments

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Publication date

2014

Document Version

Final published version

[Link to publication](#)

Citation for published version (APA):

Gaikhorst, L. (2014). *Supporting beginning teachers in urban environments*. [Thesis, fully internal, Universiteit van Amsterdam].

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CHAPTER 4

The sustainability of teacher professional development

Abstract

This study investigated whether the positive effects of a professional development programme for urban teachers ('Mastery') were observed one year after the programme ended and which characteristics and activities in the schools of the participants contributed to those positive effects. The study included both a quasi-experimental study (N=72) and interviews (N=19). The study showed a significant effect of the programme on teachers' competences and professional orientation. The teachers and their principals considered an open culture in the schools as the most important factor for the sustainability of the programme's effects.

Keywords: teacher retention, teacher training, teacher professional development, professional learning community, organisational transfer climate

Introduction

Teacher retention is a considerable problem in urban areas, particularly in disadvantaged schools (Ingersoll, 2003). For a variety of reasons, such as the need to address diversity and language differences, teaching in urban environments is considered challenging and difficult for teachers (Groulx, 2001; Kooy, 2006). Teachers are often not well prepared for such situations (Erskine- Cullen & Sinclair, 1996; Çelik & Amaç, 2012), which can lead to an outflow of teachers from urban schools and education in general. Because teaching in urban areas is challenging, it would be expected for beginning teachers to be provided with additional support in the beginning phase of their career, for instance, in the form of a professional development programme that focuses on teaching in urban schools.

Several studies have shown that professional development programmes can contribute to the competences and job motivation of teachers (Borko, 2004; Gilles, Davis, & MacGlamery, 2009); however, it also appeared that it is not self-evident that the effects of professional development programmes will be maintained after completion of the programmes. Research has shown that professional development interventions should be permanent to become and remain effective, for instance, by creating follow-up activities (Yoon, 2009; Desimone, 2009).

According to several studies, the creation of a professional learning community (PLC) in schools, in which the focus is on teacher learning and collaboration, is a promising way to promote the continuous professional development of teachers (Little, 2006). It is also possible that PLCs contribute to the long-term effects of professional development programmes.

However, little is known about the characteristics of and activities in PLCs that contribute to the sustainability of professional development interventions. The present study investigated whether the positive effects of a professional development programme for urban teachers ('Mastery') were observed one year after the programme ended, whether PLC characteristics and activities in the programme participants' schools contributed to those positive effects, and if so, which characteristics and activities.

Professional development programmes for teachers

Many studies have focused on effective professional development interventions for teachers (see for instance Borko, 2004; Morge, Toczek, & Chakroun, 2010; Lee, Lewis, Adamson, MaertenRivera, & Secada, 2008; Gilles, Davis, & MacGlamery, 2009). In several of these studies, professional development interventions positively affected the learning of teachers and/or pupils. Professional development programmes appeared to contribute to teachers' knowledge (Borko, 2004; Ponte, Beijaard, & Wubbels, 2004; Hofman & Dijkstra, 2009). For instance, professional development programmes can help teachers develop rich and flexible knowledge regarding their subjects (Borko, 2004). Additionally, professional development programmes can contribute to teachers' teaching competence. For instance, Vogt and Rogalla (2009) observed that professional development intervention positively contributed to adaptive teaching competency. Furthermore, professional development interventions can contribute to self-efficacy of teachers (Hofman & Dijkstra, 2009). For instance, teacher professionalisation in a teacher network had a positive effect on the self-efficacy of teachers (Hofman & Dijkstra, 2009). Professional development programmes can contribute to job motivation and the retention of teachers (Gilles, Davis, & McGlamery, 2009; Hofman & Dijkstra, 2009). Gilles, Davis and MacGlamery (2009) observed positive effects of a professional development intervention for beginning urban teachers on job motivation and the retention of these teachers. Finally, professional development programmes can have a positive effect on student learning and student results (Domitrovich, Hest, Gill, Bierman, Welsh, & Jones, 2009; Morge, Toczek, & Chakroun, 2010; Doppelt, Schunn, Silk, Mehalik, Reynolds, & Ward, 2009; Wallace, 2009). For instance, Domitrovich et al. (2009) observed a positive effect of a professional development intervention with a focus on language, literacy and social-emotional development on pupils' social problem solving skills and communication and language use at home, amongst other skills.

Although several studies on teacher professional development have shown a positive effect of professional development programmes on the learning of teachers and/or pupils, it also appeared that it is not self-evident that the effects of professional development programmes will be maintained after completion of the programmes; interventions should be permanent to become and remain effective (Yoon, 2009;

Desimone, 2009). For instance, this could be realised by follow-up interventions and encouraging the on-going learning and collaboration of teachers.

Although research has shown that embedding professional development interventions in the school organisation is important for the success and sustainability of the programmes, this aspect is often neglected because many studies focus mainly on the effects of professional development interventions (Van Veen, Zwart, & Meirink, 2012). Therefore, it is important to investigate how professional development activities could be embedded in the school organisation to maintain and/or enhance the effects of the interventions in the long-term.

School organisation and professional development

In school organisational literature and workplace learning and learning in organisations literature, school organisational activities are described that might contribute to the continuous professional development of teachers and the lasting effects of professional development interventions.

Literature on learning in organisations shows that it is important that school organisations facilitate the *transfer* of learning outcomes from professional development interventions to the workplace (Hatala & Fleming, 2007; Lim & Morris, 2006; Gregoire, 1999; Blume,

Ford, Baldwin and Huang (2010) define transfer as a dynamic and complex process, which consists of two major dimensions: a) generalisation - the extent to which knowledge and skills acquired in a learning setting are applied to other settings, individuals and/or situations, and b) maintenance - the extent to which changes from learning experiences persist over time. To successfully transfer learning outcomes from professional development programmes to the workplace, it is important that teachers have opportunities to practice newly gained skills and knowledge in school organisations, that teacher learning is appreciated, for instance, by rewards and incentives (Baldwin & Ford, 1988; Gregoire, 1999; Rouiller & Goldstein, 1993) and that teachers receive sufficient support and feedback (Baldwin & Ford, 1988; Gregoire, 1999). Supervisors and colleagues play a crucial role in the transfer process by providing support and feedback and showing their involvement (Baldwin & Ford, 1988; Gregoire, 1999). According to Bruke and Hutchins (2007), the alignment between the policy of the organisation and

goals of the professional development programmes is important for the transfer of the programme to the workplace. Broad and Newstrom (1992) and Minter (1996) argue for partnerships between trainers, trainees and supervisors in the organisation. The transfer process also appears to be influenced by individual attributes of the participants (for instance, by the involvement and expectations of the participants (and his/her perception of the utility of the programme for the workplace) and the curriculum of the professional development programmes (for instance, by the relevance of the curriculum to work) (Gregoire, 1999; Baldwin & Ford, 1988).

The notion of transfer has been criticised in the literature as being too simplistic, based on replicative conceptions of learning, and disconnected from complex contextual factors that also influence the transition between learning and work contexts (Hager & Hodkinson, 2009). Tuomi-Gröhn and Engeström (2003) indicated that the working and learning contexts influence one another and contribute to the learning process of the participants. Therefore, developers of professional development programmes and stakeholders in schools are both responsible for the successful transfer of learning outcomes from professional development programmes to the workplace.

Furthermore, it appears that it is important that school organisations create a *culture for teacher learning* for successful professional development (Van Veen et al. 2012; Assunção Flores, 2004). Concepts are elaborated in the literature on learning in organisations and the workplace that could be useful to understand such learning cultures. Research on learning in organisations has shown that a culture for learning refers to an open organisational climate, in which the employees collaborate and trust one another, feel safe to make mistakes and open communication is the norm (Runhaar, Sanders & Slegers, 2009; Weiss, 1999). Literature on learning in the workplace has shown that it is important that organisations provide sufficient support and feedback, opportunities to learn and access to learning resources (Ashton, 2004). Additionally, involved colleagues who support one another appeared to be important (Assunção Flores, 2004). The research of Geijsel, Slegers, Stoel and Krüger (2009) showed that school leaders play an important role: school leaders with a transformative leadership style who provided teachers with the security required to experiment, make mistakes and exchange tips appeared to positively affect professional development.

Several activities in school organisations that could foster the transfer of professional development interventions to the workplace and promote the on-going professional development of teachers, such as collaboration between teachers and opportunities for support and feedback, are typical for what has recently been referred to as *professional learning communities* (Little, 2006).

Although there are variations in how researchers define professional communities, most definitions encompass practices that are supportive for teacher learning, including observation, problem solving, mutual support and advice (Little, 2006; Grodsky & Gammoran, 2003). PLCs refer to close relationships between teachers, typically with the implication that these relationships are oriented toward teacher professional development (Little, 2006). Strong PLCs are characterised by an overall vision, in which teacher learning is considered relevant by both school leaders and teachers (Little, 2006). There is a collective focus on and shared responsibility for student learning, collective control over important decisions and collaboration between teachers (Grodsky & Gamoran, 2003; McLaughlin & Talbert, 2001; Little, 2006; Stoll, Bolam, McMahan, Wallace, & Thomas, 2006). Teachers in strong PLCs have access to new knowledge about teaching and learning and to the expertise of colleagues from in- and outside their school. Teachers provide one another feedback on individual performance and aspects of classroom and school practice (Little, 2006). Preconditions for the creation of strong PLCs are sufficient time, materials and space and access to the expertise of colleagues (Little, 2006). Furthermore, school leaders play an important role, which is to cultivate PLCs (Stoll et al., 2006).

Several studies have shown positive relationships between PLCs in schools and the on-going/continuous professional development of teachers (Little, 2006; McLaughlin & Talbert, 2004; Wilson & Berne, 1999). There are also indications that the success of professional development programmes is dependent on the quality of PLCs in schools (Little, 2006). Simultaneously, there are indications that when a school supports teachers' participation in high-quality professional development programmes, PLCs are strengthened (Little, 2006).

Although many studies have stressed the importance of PLCs in schools for the (on-going) professional development of teachers and success of professional

development programmes, it is not known which activities and characteristics contribute to the long-term effects of professional development programmes.

Professional development of teachers in urban environments

It is important for urban education that teachers participate in good and sustainable professional development interventions. Urban teachers must teach in a complex environment where they encounter several challenges. Urban teachers must address the problems that apply to all beginning teachers, such as classroom discipline and a high workload (Abbott, Moran, & Clarke, 2009; Veenman, 1984). In addition, beginning urban teachers must address the typical challenges of an urban context, such as cultural diversity and an unsafe atmosphere in and around school (Groulx, 2001; Knoblauch & Woolfolk, 2006). Despite several initiatives intended to professionalise teachers to teach in urban schools, teachers have still difficulties with teaching in urban areas. Beginning (high quality) teachers are more likely to leave urban schools compared to non-urban schools (Freedman & Appleman, 2009; Ingersoll, 2003; Tamir, 2013).

Teaching in an urban environment places heavy demands on the teacher quality. One important criterion for teacher quality is teacher competency. Teaching in urban contexts demands specific *competences*. Research shows that teaching in large cities in the US demands that teachers be skilled in handling cultural diversity and language deficiencies (Groulx, 2001; Olmedo, 1997). A greater appeal than in other schools is made on teachers' abilities to collaborate and develop effective relationships with individuals in and outside the school (Voltz, Collins, Patterson, & Sims, 2008). Furthermore, urban teachers must address violence and unsafe environments (Smith & Smith, 2006). It is important that teachers support one another because of the complexity of teaching in an urban environment and the heavy demands on teacher competences. Mutual support (including observation, feedback and collaboration) is an important feature of PLCs.

Another criterion for teacher quality is self-efficacy. Siwatu (2011) observed that beginning teachers have lower *self-efficacy* regarding teaching in urban areas than suburban areas. The research indicates that teachers with low self-efficacy are less motivated to experiment with pedagogical innovations/challenges and are more likely to experience burnout than teachers with high self-efficacy (Evers, Brouwers, & Tomic, 2002).

According to Siwatu (2011), it is conceivable that teachers in urban areas who doubt their capability to manage daily challenges may leave the teaching profession after a few years. There are indications from the literature that PLCs positively affect teachers' self-efficacy (Cowley & Meehan, 2002; Stegall, 2011). Stegall (2011) observed that teachers who participated in PLCs showed increased self-efficacy in instructional strategies and student engagement.

Finally, an important criterion for teacher quality is teacher *professional orientation* (Mahieu, Forest Diet, & Peene, 1999). Teachers are expected to not only perform well within the classroom but also demonstrate professionalism that extends beyond the classroom. Hoyle (1980) distinguishes 'restricted professionalism', in which teachers focus primarily on their own classroom and base their actions on experience rather than theory, from 'extended professionalism', in which teachers are involved in the school organisation and have an interest beyond the classroom. There are indications that the job satisfaction of teachers is positively promoted by the shared responsibility and mutual support of the team of teachers, which is typical for extended professionalism (Mahieu et al., 1999). We presume that an extended orientation is particularly important for working in an urban context because urban teachers must operate in a complex educational environment. In urban schools, it is even more important that teachers support one another and there is shared responsibility. PLCs could contribute to the development of an extended professional orientation, in the sense that the focus in those communities is not on own classroom practices but shared responsibility, mutual support and collaboration between teachers to reach common goals.

The present study: purpose and research questions

This study examined the long-term effects of a professional development programme ('Mastery') on the quality and retention of beginning urban teachers. The programme aimed to prepare teachers for the challenges of teaching in urban primary schools. Previous research has shown positive effects of this programme on the competences and self-efficacy of teachers (Gaikhorst, Beishuizen, Zijlstra, & Volman, 2014). This study investigated whether these positive effects were also long-term and which characteristics and activities were typical of school organisations where teachers showed positive long-term effects of the 'Mastery' programme.

The research questions of this study were formulated as follows:

1. What are the long-term effects of participation in the ‘Mastery’ programme to the quality (competences, professional orientation and self-efficacy) and retention (job motivation and career choices) of teachers?
2. Which characteristics and activities are typical of school organisations in which teachers showed positive long-term effects of the ‘Mastery’ programme?

Method

Research design

The first research question was investigated using a quasi-experimental design with an experimental and control group. The long-term effects of participation in the ‘Mastery’ programme on the quality (competences, professional orientation, self-efficacy) and retention (job motivation and career choices) of teachers was measured using a knowledge test and questionnaires (pre-, post- and retention measures). Pre-measures (administered before the beginning of the programme), post-measures (conducted directly after completing the programme) and retention measures (administered one year after completion) were used.

The second research question was investigated through interviews. This qualitative method was chosen because we wanted to obtain a detailed understanding of the school characteristics and activities that were meaningful for the teachers such that the activities helped the teachers maintain and/or enhance the long-term effects of the ‘Mastery’ programme.

The ‘Mastery’ programme

The ‘Mastery’ programme was a professional development programme for beginning primary school teachers working in Amsterdam. The programme purpose was twofold: to increase the *quality* of teaching and contribute to the *retention* of beginning teachers in the urban educational context.

The content of the programme was focused on the acquisition of skills necessary to meet the challenges of teaching in a complex urban environment, such as collaborating with professionals both in- and outside the school environment, addressing aggressive

behaviour and language deficiencies of children, communicating with parents of different cultural backgrounds, and developing an extended professional orientation.

The programme was one year and consisted of the following three components: group meetings (these involved theoretical input from experts, opportunities for sharing experiences and group assignments), classroom application (participants apply new insights to their teaching practices) and lectures (in which experts explored urban themes). Additionally, supervision was organised, offering a context for beginning teachers to share experiences and expertise (for a more extensive discussion about 'Mastery', see Gaikhorst, Beishuizen, Zijlstra, & Volman, 2014).

Participants

For the quantitative component of the present study, all 133 teachers who participated in the post-measurement were approached and asked whether they would like to participate in the retention measurement. In total, 44 of the 67 teachers from the control group and 28 of the 66 teachers from the experimental group completed the retention measurement. Whether the group of teachers who completed the retention measurement was comparable to the group who did not complete the measurement was determined for both the experimental and control groups by comparing the post-measurement scores. There were no significant differences between the teachers who completed the retention measurement and those who did not (p -values were all $> .05$).

The experimental and control group comprised teachers who taught at a primary school in Amsterdam. The experimental group participated in the 'Mastery' programme, whereas the control group teachers did not.

To derive obvious conclusions regarding the effects of the intervention, a matching procedure was developed whereby the participants of both conditions were matched on several potentially interfering variables. For this study, we determined whether the teachers who completed the retention measurement from the experimental and control condition were comparable regarding the potentially interfering variables, which were also measured in our previous study. The conditions appeared to be comparable for all characteristics (see Table 1).

Table 1

Comparison of the conditions in terms of the general characteristics of the teachers

	'Mastery' condition			Control Condition		
	M	SD	N	M	SD	N
Teaching experience ^a	6.37	1.81	27	6.86	1.74	44
Gender ^b	0.93	0.26	28	0.98	0.12	44
School population (SES) ^c	2.23	1.24	26	2.50	1.15	44
School population (ethnic background of parents) ^d	2.54	1.27	26	2.66	1.22	44
Highest achieved level of education ^e	2.29	1.05	28	2.66	1.14	44
Place of teacher training ^f	0.30	0.47	28	0.30	0.46	44

^a 1= 0.5 year, 1=1 year, 2=2 years, 3=3 years, 4=4 years, 6=5 years, 6=6 years, 7=7 years

^b 0= male, 1= female

^c 1= 0-30% pupils with lower SES, 2= 30-50% pupils with lower SES, 3= 50-70% pupils with lower SES, 4= 80-100% pupils with lower SES

^d 1= 0-30% non-Dutch pupils, 2= 30-50% non-Dutch pupils, 3= 50-70% non-Dutch pupils, 4= 80-100% non-Dutch pupils

^e 1 = lower secondary education, 2 = higher secondary education, 3= pre-university education, 4= other

^f 0 = Inside a large city, 1 = Outside a large city

For the qualitative study, teachers were selected who showed positive long-term effects of the 'Mastery' programme. In total, ten of the 15 teachers who showed positive long-term effects of 'Mastery' wanted to participate in the study. These ten teachers and nine of their school principals were interviewed.

Instruments

Several questionnaires were used to measure the different dependent variables. The questionnaires were administered before, immediately after and one year after completion of the programme (pre-, post- and retention test). The questionnaires that were used for the retention test were identical to those administered for the pre- and post-test. The

period between the measurements was identical for both the experimental and control groups (namely, one year).

Competences for teaching in an urban environment

Competences for teaching in an urban environment were operationalised as knowledge of methods of coping with language deficiencies, threats to safety, cultural diversity and various actors in the school. To measure these competences (in terms of knowledge), a knowledge test was developed by the educators of the programme in collaboration with the researchers. We realise that knowledge is a poor operationalisation of competence, but in the context of the programme, this was the most feasible method of measurement. The knowledge test consisted of 54 multiple-choice questions that addressed four urban themes. The teachers were asked to choose the best answer from four alternatives. The variable 'knowledge score' was calculated by computing the amount of correct answers. Cronbach's alpha was .70 for the pre-test, .71 for the post-test, and .70 for the retention test.

Professional orientation

Professional orientation was measured by the questionnaire that was developed by Jongmans, Biemans and Beijaard (1998), based on Hoyle (1980)'s characterisation of teachers with a restricted or an extended professional orientation. The questionnaire consists of 13 items. The teachers were asked to indicate to what extent they agreed with each of the 13 statements using a five-point scale that ranged from 'totally disagree' to 'totally agree'. Negative responses were interpreted to indicate a restricted orientation, whereas positive responses were interpreted to indicate an extended professional orientation. The variable 'professional orientation' was calculated by obtaining the mean of the 13 items. Cronbach's alpha was .76 for the pre-test, .80 for the post-test, and .76 for the retention test.

Teacher self-efficacy

Teacher self-efficacy was measured using the 'Attitude towards the teaching profession' questionnaire (Meijer & Van Eck, 2008). This questionnaire was translated and adapted from Kyriacou and Kunc (2007). The scale consisted of nine items, and the teachers were

asked to indicate the extent to which they agreed with each of the statements using a five-point scale that ranged from 'totally disagree' to 'totally agree'. Negative responses were interpreted to indicate low self-efficacy, and positive responses were interpreted to indicate high self-efficacy. The variable 'self-efficacy' was calculated using the means of the nine items. Cronbach's alphas were .86, .88, .87 for the pre-, post- and retention tests, respectively.

Motivation for teaching

The job motivation of the teachers was measured using the 'Vision of teaching and job satisfaction' questionnaire (Meijer & Van Eck, 2008). The teachers were asked to indicate the extent to which they agreed with each of the 10 statements using a five-point scale that ranged from totally disagree to totally agree. Negative responses were interpreted to indicate low motivation (for teaching), and positive responses were interpreted to indicate high motivation. The variable 'motivation' was calculated using the means of the 10 items. Cronbach's alpha was .71 for the pre-test, .78 for the post-test and .78 for the retention test.

Career choices

The career choices of the teachers were measured using several questions regarding actual and planned career choices. The questions addressed the intention of the teacher to remain in education (in this profession, at this school, in an urban environment), the steps taken to orient into other sectors and the actual actions taken to leave the education profession.

Characteristics and activities that contributed to the sustainability of the 'Mastery' programme

For a detailed understanding of the school characteristics and activities that contributed to the sustainability of 'Mastery', semi-structured telephone interviews were conducted with ten programme participants, who reported positive long-term effects, and nine principals of these participants.

The interviews consisted of two sections. In the first section, the interviewer asked about the perceived influence of the programme on the dependent variables of the quantitative study: competences, professional orientation, self-efficacy, job motivation and career choices. The second section of the interviews focused on the characteristics and activities considered typical of a PLC that were performed in the schools where teachers reported positive long-term effects of the programme. The interviewer began with the question whether the respondents believed that it had been possible for the teachers to develop, apply and share the acquired expertise from the 'Mastery' programme within their schools. After this question, the interviewer asked which school activities and characteristics were, in the perception of the respondents, helpful for the teachers to maintain and/or enhance the effects of the programme. The respondents could spontaneously report on these school activities and characteristics.

Thereafter, the interviewer specifically focused on the school characteristics and activities from the literature that are considered important for the (on-going) success of professional development. These activities and characteristics were summarised in a checklist (see Table 2).

Table 2

Checklist of school characteristics and activities that were used in the second section of the interviews and times that they were recognised by teachers and principals

School organisational characteristics and activities from the literature	Teachers (N=10)	Principals (N=9)
Opportunities in the school to share newly gained expertise from the professional development programme with colleagues	10	8
Appreciation in the school for teachers' input from the professional development programme	10	7
Opportunities in the school to practice newly gained expertise from the professional development programme	8	9
Involved colleagues in the school who show their interest in the professional development programme	7	5
Alignment between the policy of the school and goals of the professional development programme	5	7
Support and feedback from colleagues in the school regarding the professional development programme	4	5
A culture for teacher learning in the school:		
- Teachers have access to new knowledge about teaching and learning	9	9
- Teachers collaborate with one another in the school	8	7
- Teacher learning is considered to be relevant by both school principals and teachers	7	7
- There is collective control over important decisions	6	9
- There is a safe atmosphere in the school (in which teachers feel free to make mistakes)	6	6
- There is a collective focus on and shared responsibility for student learning	6	7
- The school organisation is focused on teacher learning	5	6
- Teachers learn from one another in the school	4	6

The interviewer asked whether the participants recognised the activities and characteristics from the checklist in their own schools, for instance, whether colleagues showed interest and involvement regarding the ‘Mastery’ programme toward the teacher. The participants were asked to explain their answers with concrete examples to obtain an obvious picture of what happened in their schools. The interviewer also asked whether the respondents believed that what the teachers had learned from the programme was positively influenced in the long-term by the different school organisational characteristics and activities.

Data analysis

Quantitative data

Multilevel modelling was used to determine the effects of the ‘Mastery’ programme on the different dependent variables. Measurement occasions (level 1) were treated as nested in teachers (level 2). The independent variables in the analyses were condition (experimental or control condition) and measurement occasion, whereas the dependent variables were competences, professional orientation, self-efficacy, job motivation, and career choices. The assumptions for multilevel modelling were checked, and no violations were observed.

The effect sizes were calculated using the formula of Raudenbush and Liu (in Feingold, 2009, p.7), whereby we divided the coefficient for the interaction effect between the retention test and experimental condition by the pooled standard deviation of the dependent variable on the two measurement occasions (namely, pre- and retention test).

Qualitative data

A content analysis was employed to analyse the data from the interviews (Miles & Huberman, 1994). A process of coding and categorising the data were utilised. The responses to the interview questions were examined and coded by the first author. The coding process was an interpretative and iterative process, whereby the responses of the respondents were coded and grouped together. The codes referred to the perceived effects of the ‘Mastery’ programme on the dependent variables (for example, an increase in extended professional orientation) and the PLC activities and elements that were

present in the school organisations where teachers reported positive effects of the programme (for example, the opportunity for sharing experiences with colleagues). It was difficult to determine inter-rater reliability because of the interpretative and iterative nature of the data analysis (Akkerman, Admiraal, Brekelmans, & Oost, 2008). To enhance the trustworthiness of the analysis, the following procedures were followed for the interview analysis:

1. All fragments that were difficult to code, in the perception of the coder (first author), were discussed with another experienced researcher (second author). These fragments and codes were discussed until a consensus was reached and the coding was adjusted to the outcome of this discussion.
2. The outcome of the interpretation of the meaning was audited by a procedure, whereby the codes of two (randomly chosen) scored interviews (10%) were checked and discussed in a peer review (Kvale, 2007). The codes from the coder (first author) were verified by an individual who did not participate in the study. This individual examined the different fragments and codes to determine whether she concurred with the assigned codes. Coding for ‘competences’, ‘self-efficacy’, ‘job motivation’, ‘career choices’ and ‘PLC activities and elements’ demonstrated a 100 % concurrence rate. However, coding ‘professional orientation’ was less uniform, with a 91% concurrence rate. The codes that were less uniform were discussed until agreement was reached, and the coding was adjusted to the outcome of the discussion.

Results

Descriptive statistics of the main variables

The descriptive statistics of the dependent variables included in the study are presented in Table 3.

Table 3

The descriptive statistics for the dependent variables

	Pre-test		Post-test				Retention test					
	M	SD	Min	Max	M	SD	Min	Max	M	SD	Min	Max
'Mastery' condition												
Knowledge	27.31	5.39	14.00	39.00	34.56	5.19	21.00	44.00	32.29	5.34	23.00	47.00
Professional orientation	4.19	0.33	3.54	4.92	4.19	0.40	2.85	5.00	4.39	0.30	3.77	4.85
Self-efficacy	3.81	0.37	2.67	4.89	3.92	0.42	2.89	4.89	3.98	0.41	3.11	4.78
Job motivation	4.10	0.36	3.44	4.78	3.83	0.33	2.89	4.44	4.12	0.42	3.44	4.78
Career choices	3.41	0.96	2.00	5.00	3.13	0.94	2.00	5.00	3.07	1.02	1.00	5.00
Control condition												
Knowledge	28.85	6.65	15.00	42.00	29.30	5.76	18.00	43.00	28.56	6.04	15.00	44.00
Professional orientation	4.37	0.34	3.54	4.92	4.42	0.34	3.69	4.92	4.34	0.38	3.54	5.00
Self-efficacy	3.98	0.53	2.44	2.89	3.90	0.54	2.56	5.00	4.02	0.56	2.89	4.89
Job motivation	4.06	0.45	2.89	4.89	3.67	0.49	2.67	4.67	3.93	0.51	2.78	4.89
Career choices	3.06	1.01	1.00	5.00	2.84	1.00	1.00	5.00	2.77	1.10	1.00	5.00

Evaluation of the long-term contributions of the ‘Mastery’ programme to the dependent variables

The long-term contribution of the ‘Mastery’ programme to teachers’ competences

The outcomes of the multilevel analysis are presented in Table 4. There was a significant interaction effect between the retention test and experimental condition, which indicated that, given the initial difference between the conditions in the pre-test (in which the experimental condition scored lower than the control condition, see Table 3), teachers’ knowledge increased relatively more in the ‘Mastery’ condition from the pre-test to the retention measurement. The effect size was 0.72, which can be considered large (Cohen, 1992).

Table 4

Parameter estimates for the multilevel models of teachers’ competences predicted by measurement occasion and condition

	Knowledge		
	Coeff	SE	P
Measurement occasion 1 (pre-test)	28.74	0.85	.00
Measurement occasion 2 (post-test)	29.25	0.81	.00
Measurement occasion 3 (retention test)	28.75	0.92	.00
Condition (experimental)	-1.44	1.16	.22
Post-test * experimental condition	6.86	0.99	.00
Retention test * experimental condition	4.13	1.30	.00

The results of the qualitative analysis confirmed the conclusion of the quantitative analysis. The majority of the respondents indicated that the teachers developed several competences for urban teaching, such as dealing with parents (both highly educated parents or parents with culturally diverse backgrounds) and language deficiencies. Nearly all the teachers experienced a positive influence of the ‘Mastery’ programme on their communication competences. One teacher stated the following:

“Yes, I certainly do [experience a long-term influence of the programme], in the communication with colleagues. Through the module communication, I learned to say things in an adequate way, and - not immediately - but by doing this more often, I experience that I dare to do so. I notice that [...] when things go beyond my limit, I can say ‘I experience this and I do not like it’, and I encounter that people take me seriously.”

The long-term contribution of the ‘Mastery’ programme to teachers’ professional orientation

The interaction effect between the experimental condition and retention test was significant (Table 5). This result indicates that, given the initial difference between the conditions on the pre-test (in which the experimental groups scored lower on the professional orientation scale than the control group, see Table 3), teachers’ professional orientation increased relatively more in the ‘Mastery’ condition from the pre-test to the retention measurement. There was an increase (small) in teachers’ professional orientation in the experimental groups and a (small) decrease in the control group (see Table 3). The effect size appeared to be 0.58, which can be considered medium (Cohen, 1992).

Table 5

Parameter estimates for the multilevel models of teachers’ professional orientation predicted by measurement occasion and condition

	Professional orientation		
	Coeff	SE	P
Measurement occasion 1 (pre-test)	4.37	0.04	.00
Measurement occasion 2 (post-test)	4.41	0.05	.00
Measurement occasion 3 (retention test)	4.32	0.05	.00
Condition (experimental)	-0.18	0.06	.00
Post-test * experimental condition	-0.04	0.06	.57
Retention test * experimental condition	0.20	0.07	.01

The results of the qualitative analysis confirmed the conclusion of the quantitative analysis. In the opinion of the respondents, the ‘Mastery’ programme contributed to the

development of a broader view on teaching. Several respondents mentioned that the teachers were more interested and involved in the process of school development (for instance, they became members of project groups) after participation in the programme.

One teacher declared the following:

“I focus more on things outside my classroom. I became also more interested in teaching in Amsterdam, in what happens on other schools. I also joined the participation council, and by following ‘Mastery’, I became more interested in what we can change at the policy level.”

The long-term contribution of the ‘Mastery’ programme to teachers’ self-efficacy

The interaction effect between condition and the retention test was not significant (Table 6), which indicated that teachers’ self-efficacy did not increase more in the ‘Mastery’ condition from the pre- to retention measurement.

Table 6

Parameter estimates for the multilevel models of teachers’ self-efficacy predicted by measurement occasion and condition

	Self-efficacy		
	Coeff	SE	P
Measurement occasion 1 (pre-test)	3.98	0.06	.00
Measurement occasion 2 (post-test)	3.89	0.06	.00
Measurement occasion 3 (retention test)	4.02	0.07	.00
Condition (experimental)	-0.17	0.08	.04
Post-test * experimental condition	0.20	0.07	.00
Retention test * experimental condition	0.09	0.09	.35

However, the results of the interviews showed that, in the opinion of the respondents, the ‘Mastery’ programme positively affected the self-efficacy of the teachers. For instance, the teachers felt more confident in their contact and communication with parents and colleagues and in providing language education.

One teacher stated the following:

“I feel more confident. I can make more easily contact with parents..., that was something that we have learned in the module about communication, how you can handle that. Additionally, that you can more easily give advice to parents, that you know better how the process of language learning works with second language learners.”

The long-term contribution of the ‘Mastery’ programme to teachers’ job motivation

The interaction effect between the experimental condition and retention test was not significant (Table 7). This result indicated that teachers’ job motivation did not increase more in the ‘Mastery’ condition than in the non-‘Mastery’ condition from the pre-test to the retention measurement.

Table 7

Parameter estimates for the multilevel models of teachers’ job motivations predicted by measurement occasion and condition

	Job motivation		
	Coeff	SE	P
Measurement occasion 1 (pre-test)	4.06	0.05	.00
Measurement occasion 2 (post-test)	3.67	0.05	.00
Measurement occasion 3 (retention test)	3.95	0.06	.00
Condition (experimental)	0.04	0.07	.53
Post-test * experimental condition	0.11	0.07	.14
Retention test * experimental condition	0.07	0.09	.42

Although the quantitative results showed no influence of the programme on the job motivation of the teachers, several respondents of the interviews mentioned that the programme positively affected the motivation of the teachers. These respondents explained that the programme provided teachers with (new) inspiration or energy for teaching and/or insights into the attractive aspects of the education profession.

One teacher stated:

“Yes, I have to say that it is a very hard job, but I experienced that... the programme gave me new energy.... it gave me the energy to do things better, I became motivated through that.”

Another teacher explained:

“Yes, ‘Mastery’ showed me what I really like about teaching. I know now that I am really interested in the behaviour of children and in the contact with the children. The programme has given me clarity in what I really like.”

The long-term contribution of the ‘Mastery’ programme to teachers’ career choices

There were no significant interaction effects regarding teachers’ career choices. The p-values of the interaction effects of the different items were all $> .05$, thus indicating that the teachers’ career choices did not increase more in the ‘Mastery’ condition than in the non-‘Mastery’ condition from the pre-test to the retention measurement.

However, several respondents of the interviews experienced a positive contribution of the programme to teachers’ career choices. According to these respondents, the programme stimulated the teachers to think more about their professional development and encouraged them to develop themselves in a certain direction (for instance, using follow-up courses).

One school principal stated:

“Yes, I know for sure that the ‘Mastery’ programme influenced her career choices because she followed a management course, so she orientated and searched more for a course on that.”

School characteristics and activities

The majority of the teachers and principals mentioned that it was possible in their schools to develop and apply what teachers had learned in the ‘Mastery’ programme in their schools. These teachers and principals recognised from the literature that there were *opportunities to practice the newly gained expertise from the programme* in their schools (see Table 2). The teachers experienced sufficient opportunities to practice newly gained competences (for example, they could practice their newly gained communication competences in parent conversations) and were able to apply and develop their newly gained insights by fulfilling new tasks and roles at their schools. For instance, teachers became members of working groups that were responsible for educational innovations in the schools. Additionally, several teachers indicated that they had the opportunity to

develop their expertise from the 'Mastery' programme in follow-up courses, which was confirmed by their principals. The majority of the teachers and principals believed that the opportunity to practice newly gained expertise in their schools was important for developing, applying and sharing expertise from the 'Mastery' programme.

Furthermore, the majority of the respondents mentioned that in their schools, it was possible to share the expertise from the 'Mastery' programme. All teachers and nearly all principals recognised from the literature that there were *opportunities to share newly gained expertise from the programme with colleagues* (see Table 2). At some schools, sharing was mainly informal, such as during lunch or coffee breaks, but at other schools, sharing also occurred during formal occasions, such as group meetings and seminars. Teachers shared their experiences with the programme with their colleagues and discussed the contents of the different modules. Several teachers indicated that there was an opportunity at their school to present about the 'Mastery' programme. Some respondents mentioned that the opportunity to present was initiated by the school principal, whereas others indicated that the teachers initiated the presentation. Many respondents believed that the opportunity to share newly gained expertise with colleagues had a positive influence on developing, applying and sharing what the teachers had learned from the 'Mastery' programme.

The *involvement of principals in the 'Mastery' programme* was also mentioned by several respondents. According to these respondents, transferring expertise from the 'Mastery' programme to the workplace could be accomplished if the principals were involved in the programme. For instance, transferring expertise could be accomplished by programme assignments that were performed by both teachers and principals. Four teachers and five principals recognised the *'support and feedback from colleagues regarding the programme'* aspect from the literature (see Table 2). These respondents indicated, for instance, that colleagues and principals helped teachers perform the assignments from the 'Mastery' programme in the school or that the principals provided teachers with the opportunity to participate in follow-up courses, in which the teachers could develop competences from the 'Mastery' programme. However, although the schools were the 'good' examples, many teachers did not recognise sufficient support and feedback at their schools. These respondents indicated, for instance, that the expertise from the 'Mastery' programme could have been sustained and further developed in their schools if the school principals had adapted a more active and stimulating role. The respondents explained that the

initiative to further develop the expertise from the programme was mainly the responsibility of the teachers themselves, but it would have helped if the principals had more actively stimulated the teachers to share and expand their ideas, for instance, by asking the teachers to provide a presentation about the 'Mastery' programme for the team or reflecting with the teachers on the acquired expertise from the programme (for instance, during conversations regarding the functioning of the teachers).

Furthermore, the respondents considered *the involvement of teachers and their newly acquired expertise in important school organisational developments* as important for the further development of the acquired expertise from the 'Mastery' programme. These respondents explained that the participation of teachers in school organisational development groups helped the teachers to apply, develop and share their expertise from the 'Mastery' programme. With the involvement of teachers in important school organisational development, teachers felt that their participation in the programme was not only something that they had performed for themselves but also had value for the school organisation. Consistent with this result, five teachers and seven principals recognised from the literature that there was an *alignment between the policy of the school and goals of the programme* (see Table 2), which could be considered helpful for the involvement of teachers and their expertise in important school organisational developments. These respondents indicated that the content of the 'Mastery' programme was broad; therefore, there was always a type of connection between the programme and school. Several respondents mentioned that the 'Mastery' programme focused on the development of a broader teaching view, which was something considered important in the schools. However, one-half of the teachers were less positive about the alignment between the programme and school policy. These respondents were not completely negative, but mentioned that some topics of the 'Mastery' programme did not fit the methods of their school or school population. According to these respondents, it was difficult to apply, develop and share the content of the 'Mastery' programme, which did not connect to the situation at their schools.

The majority of the teachers and principals responded to the open question regarding the school activities and characteristics, that an *open culture*, in which teachers could share their ideas and expertise from the 'Mastery' programme with colleagues and the input and expertise from teachers of the 'Mastery' programme was seriously

considered by colleagues and principals, was most important for the development of the acquired expertise from the programme. According to the respondents, this open culture was more important than specific conditions (such as enough space, money and time) or activities (such as follow-up courses). The majority of the teachers and principals recognised the aspect of *involved colleagues in the school who showed interest in the programme* from the literature (Table 2). Involvement was mainly expressed in what several respondents called ‘small’ things, such as asking what the teachers had performed during meetings of the ‘Mastery’ programme or the presence of principals at the graduation ceremony. According to the respondents, involvement and interest from colleagues was important to develop, share and apply the expertise from the programme because it provided the teachers the feeling that what they do and know is appreciated and important for themselves and others at the school. However, some of the respondents explicitly mentioned that too much involvement would be counterproductive because it would provide teachers the feeling of being patronised.

Additionally, *effective communication among team members* was mentioned by several respondents. According to these respondents, it was important that teachers and school principals provide one another with information, advice and feedback in an effective manner. Several principals mentioned that teachers who participated in the ‘Mastery’ programme could communicate their insights and advice from the ‘Mastery’ programme in an appropriate manner. Hereby, other team members were inspired.

Furthermore, an *affiliation with the individual needs of teachers* was considered important by some respondents. Some teachers were not able to immediately apply or share their newly acquired knowledge from the Mastery programme at their schools, for instance, because of personal reasons (such as reintegration after pregnancy or burnout). For these teachers, it was important that principals provided sufficient time, space and guidance to find their way (back) into their schools. These respondents explained that it is important that school principals not only ‘hunt’ for new expertise from professional development programmes but also listen carefully to the individual needs of teachers.

All teachers and the majority of the principals recognised from the literature that there was an *appreciation in their school for teachers’ input from the programme* (see Table 2). In particular, because teachers could substantiate their input from theory they acquired from the ‘Mastery’ programme was appreciated. Appreciation for the teachers’ input was

mainly expressed in compliments towards the teachers and in seriously listening to the input of the teachers but not an increase in salary. According to many respondents, appreciation for input from the 'Mastery' programme was important to develop, apply and share what the teachers had learned from the programme.

The majority of the principals recognised all the different aspects of a '*culture for teacher learning*' in their schools (see Table 2). The teachers also recognised several of these aspects. However, although the schools were the 'good examples', about two aspects of the culture for teacher learning, namely: '*the school organisation is focused on the learning of teachers*' and '*teachers learn from each other*', less teachers were positive. The teachers who did not recognise the first aspect indicated that they had the opportunity to follow professional development programmes in their schools, but there was no plan of how the acquired expertise would be used in the school. The other aspect of the learning culture was recognised by only four teachers. These teachers mentioned that their schools had plans to allow teachers to learn from one another, but these plans were often not realised for practical reasons.

Furthermore, it was remarkable that nearly all principals recognised the aspect '*There is collective control over important decisions*' in their schools, whereas fewer teachers experienced this collective control. Teachers who did not recognise this aspect mentioned that they had the opportunity to provide input regarding important decisions, but their input was not taken seriously by the school management because management makes the final decisions and these decisions are occasionally different than those of the teachers. Finally, although the schools were 'good examples', it was remarkable that the atmosphere at several schools was typified as 'unsafe', which was related to the fact that many experienced teachers in the school were not willing to change their working methods. Hereby, beginning teachers were hampered in sharing their new ideas and input with the team. The principals of these schools attempted to change this 'old culture', for instance, by emphasising the importance of new input from beginning teachers on the team and the resignation of several experienced teachers. However, this culture change, according to the respondents, was a complicated and long process. However, many respondents mentioned that a culture for teacher learning was realised in their schools, which helped teachers develop, apply and share their expertise from the 'Mastery'

programme. In such an open learning culture, the teachers felt comfortable, appreciated, and motivated to share and develop their expertise.

Conclusion

Long-term effects of the ‘Mastery’ programme

The results of the quasi-experimental study showed that the ‘Mastery’ programme had a positive long-term effect on the competences and professional orientation of the teachers. The interview results confirmed this conclusion. Nearly all teachers experienced a positive influence of ‘Mastery’ on their communication competences, whereas this competence was not mentioned in our previous study on the short-term effects of ‘the programme (Gaikhorst, Beishuizen, Zijlstra, & Volman, 2014). One reason for the different outcomes might be that the development of a communication competence requires a longer period of time and practice. This reason was explicitly mentioned by one of the respondents of the interviews.

A positive quantitative effect of the ‘Mastery’ programme on the professional orientation of the teachers was not observed in the post-measurements (Gaikhorst, Beishuizen, Zijlstra, & Volman, 2014). Here, this result might also indicate the development of a professional orientation requires more time and can therefore only be measured after a longer period.

The quasi-experimental study showed no positive long-term effects of the programme on the self-efficacy of the teachers, which contrasted with the outcomes of our previous study (Gaikhorst, Beishuizen, Zijlstra, & Volman, 2014). One reason for the difference might be that teachers developed a broader professional orientation in the longer term, and participated in new roles and tasks in their schools, which could lead to a decrease in self-efficacy because these tasks were new.

The quantitative results showed that participation in the ‘Mastery’ programme had no effect on the teachers’ job motivation or career choices. The absence of an effect could be because the teachers who participated in the study were all motivated before they began the programme, as evidenced by the fact that the teachers had high scores on the motivation scale in the pre-test (ceiling effect). This high motivation was also the case with the teachers from the control condition who followed different professional development programmes than the ‘Mastery’ programme.

Although the quantitative results of this study showed no long-term effect of the programme on self-efficacy, job motivation and career choices of the teachers, the interviews revealed that, according to several participants of the interviews, the programme did contribute in the longer term to the self-efficacy, job motivation and career choices of the teachers. One reason for the differences between the quantitative and qualitative results could be that there was a ceiling effect in the quantitative analysis because both conditions had high scores on the pre- and retention test scales.

School activities and characteristics

The results of the interview study showed that in schools where teachers reported positive long-term effects of the ‘Mastery’ programme, teachers experienced sufficient possibilities to apply, share and further develop the acquired expertise from the ‘Mastery’ programme within their schools. The school organisational characteristic that was considered most important for the sustainability of the programme’s effects was an *open culture*. Other school organisational characteristics and activities that were considered important by the respondents included *the involvement of principals in the programme, the involvement of teachers and their acquired expertise in school organisation developments, effective communication among team members, and affiliations with the individual needs of teachers*.

The study showed that in schools where teachers reported positive long-term effects of the ‘Mastery’ programme, the majority of the school organisational conditions and activities that were identified in the literature as important for the (on-going) success of teacher professional development were recognised by the teachers and principals. There were possibilities to practice and share expertise, appreciation for teachers’ input from the programme and involved colleagues who showed their interest in the programme. In the literature, a ‘culture for teacher learning’ was also identified as important for the (on-going) success of teacher professional development. Many different aspects of this learning culture were recognised by the respondents. These respondents believed that a culture for teacher learning was realised in their schools and, in their opinion, this culture helped the teachers to develop, apply and share their expertise from the ‘Mastery’ programme within the schools.

Discussion

This research aimed to contribute to our knowledge of teacher professionalisation. The study showed the long-term contribution of a professional development programme to the quality and retention of beginning urban teachers and identified several school characteristics and activities that were valuable for the sustainability of the professional development intervention.

One important finding of this study was that in schools where teachers reported positive long-term effects of the 'Mastery' programme, several school organisational characteristics were present and activities were undertaken that were perceived as valuable for the application, sharing and further development of what teachers had learned from the 'Mastery' programme. This result is an indication that school organisations play an important role in the sustainability of professional development interventions. Many studies on teacher professionalisation focus on the effects of professional development interventions (see, for instance, Vogt & Rogalla, 2009; Morge, Toczek, & Chakroun, 2010), but this study showed that it is also important to focus on embedding these interventions into school organisations.

This study identified which activities and characteristics of school organisations were perceived as valuable for the sustainability of professional development interventions. The respondents considered an *open learning culture* the most important, in which the teachers could share their expertise with colleagues and teachers and principals seriously considered their expertise. This outcome was consistent with the results of previous research, in which the value of an open learning culture for the success of (on-going) teacher professional development was emphasised (see, for instance, Assunção Flores, 2004; Little, 2006; Tamir, 2013).

The study also emphasised the role of good leadership in the sustainability of professional development interventions. Although the study included 'good examples', some teachers mentioned that expertise from the 'Mastery' programme could have been developed, applied and shared if the principals had adapted a more stimulating role. For instance, it would have helped if the principals incorporated the teachers and their acquired knowledge into important school developments. This result was consistent with the outcomes of the study of Snoek (2013), who concluded that in schools where the transfer of a professional development programme occurred successfully, the teachers felt

that their expertise was acknowledged and used by their principals in the development of the school organisation.

Another important result was that the 'Mastery' programme showed different long-term than short-term effects. We only observed a significant positive, long-term effect of the programme on the professional orientation of the teachers, and teachers only reported a positive effect of the programme on their communication competences in the long-term. This not only emphasises the importance of short-term research but also the long-term effects of professional development interventions. Several studies on professional development interventions only include pre- and post-measurements and no long-term measurements (see for instance, Vogt & Rogalla, 2009; Wilson, 2008). Therefore, the effects of professional development interventions on competences that require more time to develop were potentially not measured in these studies. This reasoning might also be why research on effective professionalisation often suggests that professional development programmes that focus on daily teaching practice are more effective than programmes with a more general focus (Van Veen, et al., 2012) because competences related to direct classroom practice are measurable after a relatively shorter period than broader competences. However, this study showed that interventions with a broader focus than classroom practice could contribute to the long-term development of broader competences (such as communication competences) and a broader professional orientation and therefore emphasises the value of a professional development programme that has a broader focus than only classroom practice.

This study has some limitations, and further research on teacher professionalisation is necessary. First, the interview study was on a small-scale, and the results cannot be generalised. The small-scale design made it possible to obtain in-depth information regarding the specific activities and conditions in schools where teachers reported positive long-term effects of the 'Mastery' programme and the perceived value of these activities and conditions. However, it would be notable to determine whether the outcomes of this study could be verified by a larger (quantitative) study.

Furthermore, we only focused on the long-term effects of a professional development programme on the quality and retention of teachers, but it would also be interesting to investigate whether the programme has a long-term effect on student performance.

Despite these limitations, this study provided insight into the long-term effects of a professional development programme and the school organisational activities and characteristics that were perceived as valuable for the sustainability of the professional development programme. The results can contribute to the knowledge of teachers, educators, educational support services, schools, school boards, and researchers on the organisation of sustainable teacher professionalisation.