

Chapter 4

Teacher–student relationships across the teaching career

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Abstract

This contribution explores the relation of teacher experience with features of teacher–student relationships. Cross-sectional and longitudinal data were used to investigate this relation. The cross-sectional data set consisted of data on teacher–student relationships of over 6000 teachers with 1–36 years of experience. Teacher experience was compared with the amount of teacher influence and proximity in the relationship. The longitudinal data set included data on perceptions of teacher–student relationships of 343 teachers, that were collected each year during 2–20 years of these teachers' career. Growth trajectories in these relationships were estimated for the first 20 years of the teaching career using multi-level analyses.

Results showed that, on average, teachers' ideal perceptions of influence and proximity were rather stable during the career. Teachers' self-perceptions and students' perceptions of proximity in the teacher–student relationship were rather stable as well. Students' and teachers' perceptions of teacher influence on average grew in the first 6 years of the teaching career.

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1. Introduction

In this contribution, we explore the importance of teacher experience for building and sustaining teacher–student relationships during the professional career. Studies on teacher

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experience focussing on changes during the entire teaching career are scarce. Most studies on teacher development focussed on short time spans such as pre-service teacher education (see, e.g. Bennett & Carré, 1993; Conway & Clark, 2003; Price, 2001) or the beginning of the teaching career (see, e.g. Fuller, 1969; So & Watkins, 2005; Veenman, 1984; Woolfolk Hoy & Burke Spero, 2005; Zeichner & Tabachnick, 1985). Other studies focussed on differences between novice and expert teachers. Although these studies usually were not designed to describe changes across the teaching career, they implicitly started from the assumption that becoming an expert teacher follows some kind of developmental process (see, e.g. Jay, 2002; Carter, Cushing, Sabers, Stein, & Berliner, 1988; Castejou & Martinez, 2001).

About 15 years ago Floden and Huberman (1989) concluded in a “state of the art” article that most research on teachers’ professional lives was still at a descriptive stage. Descriptions of teachers’ careers usually relied on (retrospective) self-reports of teachers and frequently addressed career engagement and career satisfaction. Floden and Huberman asked for finer-grained descriptive studies, more longitudinal studies and more research into causal relations. They also asked for more attention for aspects of teacher development such as teaching academic subjects, assessing student progress and encouraging students to embrace high educational goals. So, they invited research to concentrate not only on general teacher commitment to the job, but also on the daily classroom practice at different moments during the entire teaching career.

Fifteen years later the number of empirical studies with a longitudinal design, focussing on (daily classroom) teaching during (a part of) the professional careers of teachers is still not very large. Searching the literature for this type of studies¹ showed only a limited number of journal articles published between 1990 and 2005 (Agee, 2004; Brown, 2001; Craig, 2001; Henke, Chen, Geis, & Knepper, 2000; Kilgore & Ross, 1993; Manuel, 2003; Mulholland & Wallace, 2005; Pigge & Marso, 2000, 1997; Powell, 1997; Stinebrickner, 2002, 2001; Theobald & Gritz, 1996; Verjovsky & Waldegg, 2005; Wilhelm, Dewhurst-Savellis, & Parker, 2000). Longitudinal data in these studies concerned career movements or self-reports of teachers concerning (daily classroom) experiences, knowledge, beliefs, attitudes, and concerns. With one exception (Marsh & Hocevar, 1991) we did not find longitudinal research on changes in daily classroom practice based on perceptions of students or registration of external observers. Marsh and Hocevar studied student evaluations of teaching effectiveness of the same teachers in higher education ($N = 195$) over a 13-year period. They found almost no changes over time for any of nine content-specific dimensions, the overall course rating, or the overall instructor rating.

The study in this paper, contributes to knowledge on changes in daily classroom practice of teachers by providing a description of the teacher–student relationship at different moments during the teaching career. The study wants to answer the question: *Does the relation between a teacher and his or her students vary with the amount of teaching experience, and if so, how can changes during the career of individual teachers be described?* We first describe the design of the study (instrumentation, data set, and method of analysis). After presentation of the results we explore some interpretations.

¹Eric Database (terms *longitudinal* and *teaching* and *career* in *descriptors* and *abstracts*), Google Scholar (terms *longitudinal* and *teaching* and *teaching career* anywhere in the article).

2. Design of the study

2.1. Instrumentation and data set

Changes in the teacher–student relationship in secondary education were investigated using data on students' and teachers' perceptions of this relationship. The Questionnaire on Teacher Interaction (QTI, see Wubbels & Brekelmans, 2006, *this issue*) was used to gather a combination of cross-sectional and longitudinal data. This enabled us to describe differences in the teacher–student relationships of teachers with different amounts of experience and to investigate changes that occur during the career of individual teachers. Data have been collected in the last two decades on an ongoing basis from teachers and students in volunteering schools in the Netherlands. All secondary schools in the Netherlands have been offered the possibility to administer the QTI and about one third of these schools from all parts of the country use this possibility on a regular basis. This resulted in a data set of over 6000 teachers and their students from more than 200 schools. For the analyses in this study we used data about the teacher–students relationships of teachers with 1–36 years of experience.² Data were available from 3813 teachers, 2388 student teachers and more than 240,000 students. The teachers represent all subject areas. For most teachers data are available on (a) students' perceptions and (b) teacher' perceptions of the teacher–student relationship. The perceptions of teachers concern their own behaviour (self-perception) and the behaviour they would like to display (ideal-perception). Data on self-perceptions and ideal perceptions were collected in the same classes where data about students' perceptions were gathered. Data about the experience of the teachers were gathered by asking them how many years (including the year in which the QTI-data were gathered) they had been working as a teacher in education.

Cross-sectional data were gathered at one moment during the school year in different classes of the teacher. The number of classes participating varied from 1 to 14, with a mean of 2.1.³ For each of the first 10 years of experience of the teaching career data were available from at least 100 teachers for every year of experience, for each of the next 20 years from at least 50 and for the last 6 years from at least 10 teachers.

To be able to describe changes for individual teachers during their careers we also used longitudinal data. Twenty years ago we started data collection with a small group of teachers. During the period of 20 years we were able to involve a growing number of teachers in our longitudinal research. Although we planned to collect data once every year with the teachers that participated, we could not avoid missing data, due to for instance illness of teachers in the annual period of data gathering, lack of time or teachers leaving the profession. The longitudinal data set we used for the analyses in this paper consisted of data about 343 teachers gathered in at least 2 years, for 133 of them data were available on at least 3 years, for 86 on at least four, for 51 on at least five and for 37 on 6 or more years. The longest period of data collection for an individual teacher runs to 20 years.

²The maximum amount of experience in our data set was 43 years. We excluded teachers with 37–43 years of experience from the analyses because for these years we had data for less than 10 teachers.

³For each teacher we had one ideal perception score for the different classes where data were gathered on self- and students' perceptions.

2.2. Analyses

We analysed the perceptions of the teacher–student relationship on the basis of dimension scores (linear combinations of the eight scale scores; see Wubbels & Brekelmans, this issue): an Influence (Dominance-Submission, DS) score and a Proximity (CO) score. The higher these scores are, the more influence or proximity was perceived in the behaviour of a teacher. When the QTI was administered to students, scores of students from the same class were combined to a class mean.

To be able to relate the Influence and Proximity scores of these different classes to (specific years of) teacher experience we averaged the students' perceptions and self-perception data of the different classes of a particular year of the teacher's career. Because these averaged scores are not actual existing class scores, we also analysed the highest scores of teachers in a particular year for comparison.

We used analysis of variance to analyse the cross-sectional data, and multi-level models to analyse the longitudinal data (Bryk & Raudenbush, 1992). The multi-level model allows for estimation of the mean development trajectory as well as the estimation of individual variation around this mean. One of the main strengths of these models is that randomly missing data do not constitute a problem. The treatment of multiple observations as nested within the person allows to proceed without difficulty when the number and spacing of time points vary across cases. Multi-level analyses also allow to use cross-sectional data about teachers: When data are available in only one year of their career these data can contribute information (although little) to the estimation of the random part of the models (Snijders & Bosker, 1999). Therefore we combined all data from the cross-sectional data set for teachers with 1–20⁴ years of experience ($N = 2625$) with the longitudinal data set for the analyses on the development of individual teachers.

In our multi-level analyses, changes in Influence and Proximity scores were represented through a two-level hierarchical model. At the first level the development of each teacher was represented by an individual trajectory. Such a trajectory describes growth or decline of a dimension score with a set of parameters. For the empirical modelling of these trajectories we used polynomials.⁵ The parameters from the polynomial can be the outcome variables in a Level-2 model explaining differences between teachers in these variables.

In a stepwise manner we investigated if polynomials of a higher degree (linear, quadratic, cubic) fit the data better compared to the empty model (random intercept model, assuming no change in influence or proximity during the first 20 years of the career). When both differences in Deviance ($-2 \cdot \ln \text{Likelihood}$) and coefficients of parameters were significant, the model of a higher degree was considered a more adequate model. In a next step we tested the fit of the most adequate model with random slopes to get an indication of variation in growth trajectories between teachers.

⁴Because the longest period for data collection of an individual teacher was 20 years we only added cross-sectional data to that level of experience.

⁵The Level-1 model for a polynomial of degree P is $Y_{it} = \pi_{0i} + \pi_{1i}a_t + \pi_{2i}a_t^2 + \dots + \pi_{pi}a_t^p + e_{it}$ for $i = 1, \dots, n$ teachers, a_{it} is experience in year t for teacher i and π_{pi} is the growth trajectory parameter p for teacher i associated with the polynomial of degree P . We assume independent errors normally distributed with constant variance.

3. Results

3.1. Influence during the teaching career

3.1.1. Cross-sectional analyses

To describe differences between teachers with different amounts of experience, we computed for every year of experience the average Influence scores (DS) for the teachers' ideal and self-perceptions and for the students' perceptions. In Fig. 1 these scores are presented for the teachers (experience 1–36) and the student teachers (experience 0).

We examined whether analyses of real class scores gave similar results as analyses of means over a number of classes. In Fig. 2 we present the mean and the highest class scores for the Influence dimension of students' perceptions and teachers' self-perceptions for every year of experience.

Based on eyeball comparison we conclude from Fig. 2 that the highest class scores show a similar picture as the mean scores of different classes of a teacher. Therefore we based our interpretations and conclusions about the relation between influence and experience on the mean students' and self-perceptions' scores.

Fig. 1 shows teacher ideal perceptions that seem rather similar for teachers with different amounts of experience. To test differences between teachers, we divided the teachers in groups according to experience. This demarcation of the career in periods according to experience must be seen as arbitrary and not connected to specific career stages. We divided the teachers in seven groups: 0–5, 6–10, 11–15, 16–20, 21–25, 26–30, and 31–36 years of experience. Analysis of variance showed small but significant differences ($F = 17.17$; $df = 6$ 5329, $p = .0000$, $\eta^2 = .02$). Post hoc comparisons (Scheffé) located significant differences mainly between groups of teachers with 0–5 and more than 11 years of experience. Teachers with a lot of experience seemed to prefer a little less influence than teachers at the start of their career.

Students' and teachers' perceptions of actual behaviour varied for teachers across experience levels. Fig. 1 shows that beginning and student teachers see less influence in their own behaviour than their more experienced colleagues and this difference across

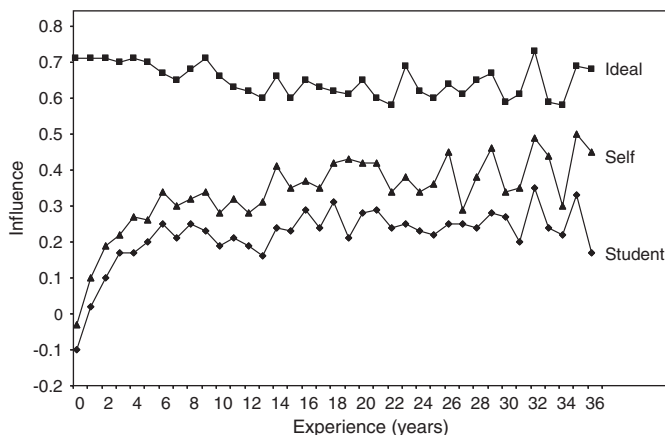


Fig. 1. Mean Influence (DS) scores by experience level; teacher ideal, self and students' perceptions.

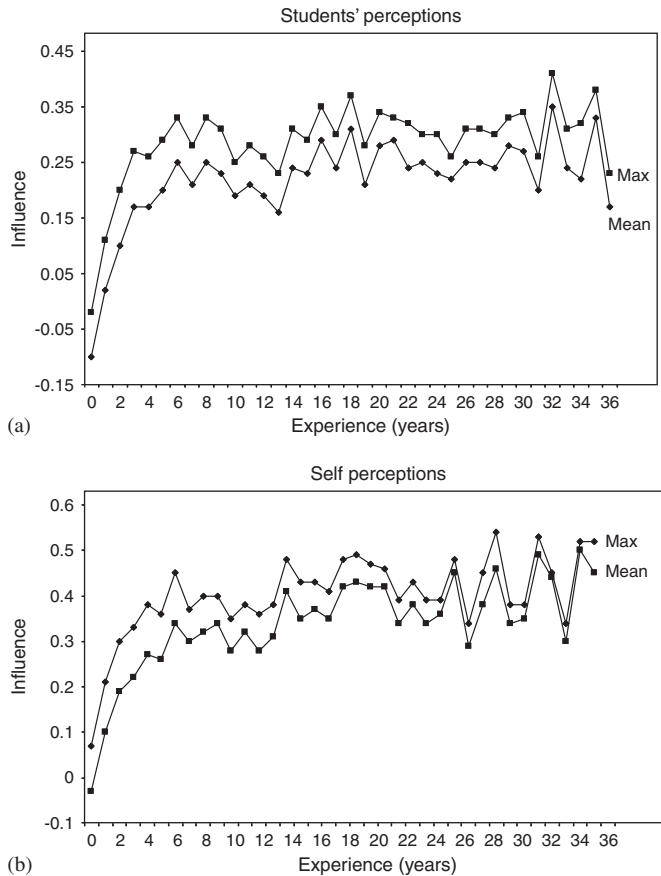


Fig. 2. (a) Maximum and mean Influence (DS) scores by experience level; students' perceptions. (b) Maximum and mean Influence (DS) scores by experience level; self-perceptions.

experience levels also holds for the students' perceptions. When successively comparing student–teachers and teachers with 1, 2 or 3 years of experience, analyses (*t*-test) showed that students' perceptions of teacher influence were significantly ($p < .05$) higher every successive year (effect sizes vary between .27 and .41). After 3 years of experience differences got smaller between successive years. To compare teachers at the start of their career with more experienced teachers, we compared mean scores of teachers with 0–3, 4–10, 11–15, 16–20, 21–25, 26–30, and 31–36 years of experience. Analysis of variance showed significant, but small differences ($F = 207.98$; $df = 6$ 6186, $p = .0000$, $\eta^2 = .02$). Post hoc comparisons (Scheffé) located significant differences mainly between groups of teachers with 0–3 and more than 3 years of experience. For self-perceptions statistical tests showed similar results.

3.1.2. Longitudinal analyses

To examine if the conclusions about differences between teachers across experience levels could be interpreted as developments during the careers of individual teachers, we performed longitudinal analysis on data from the first 20 years of the career. We used

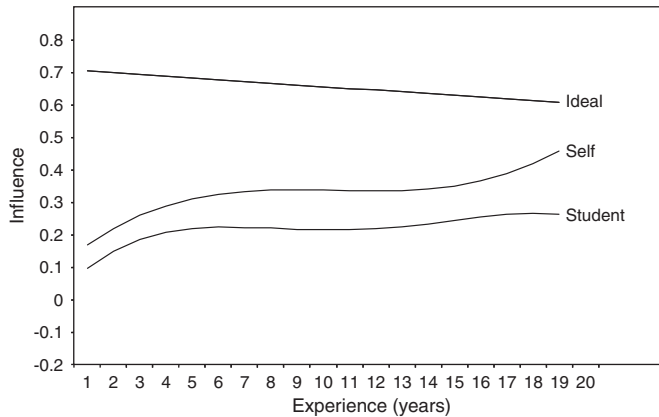


Fig. 3. Estimated growth curve Influence (DS) scores for the first 20 years of the teaching career; ideal, self and students' perceptions.

multi-level analyses to explore the degree of the most adequate Level-1 model for the Influence scores.

In Fig. 3 we present curves representing the averaged estimated start value and growth trajectory for the population of teachers of both teacher perceptions (ideal and self) and students' perceptions during the first 20 years of their careers, based on the most adequate models from these analyses.

Parameter estimates for the most adequate models for ideal, self and students' perceptions are presented in Table 1.

For teacher ideal perceptions of influence Fig. 3 shows a slightly downward straight line. A linear model (only the $t-1$ degree effect) with random intercepts and slopes seemed to be the most adequate. The model shows that the ideal score of an average teacher went down from .71 in the first year to .61⁶ 20 years later. The results of Table 1 show that the estimated mean value at the start of the career had an intercept variance of .046 (and a standard deviation of .21). According to the model, most teachers (67%) had ideal scores between .50 and .92 in the first year of their professional career. The individual linear growth rate significantly varied from $-.015$ to $.004$ for teachers with linear terms one standard deviation above and below the score of the average teacher. On average *and* for most teachers the desired amount of influence stayed rather stable and higher than students' and teachers' self-perceptions of the actual behaviour during the first 20 years of the career.

For students' perceptions Fig. 3 shows that on average influence grew mainly during the first 3 years of the teaching career. In the next 3 years influence was still growing, but the increase was smaller. In the next 10 years there seems to be a period of relative constancy and towards the end of the period of 20 years the curve shows a slightly upward tendency again. For the students' perceptions a polynomial of the fourth degree showed significant ($p < .05$) differences in deviance compared to models of a lower degree. A model where random slopes of the linear term were added, seems the most adequate, showing that there was significant individual variation around the mean.

⁶Values of Influence scores can range between -2.60 and $+2.60$.

Table 1
Models of growth for the influence dimension

	Ideal perceptions		Self-perceptions		Students' perceptions	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Fixed effect						
Intercept	.710	.008	.107	.012	.018	.009
($t-1$)	-.0054	.0009	.069	.007	.092	.009
($t-1$) ²			-.007	.001	-.014	.002
($t-1$) ³			.00022	.00004	.0009	.0002
($t-1$) ⁴					-.000019	.000006
Random effect						
<i>Level 2 (co)variance</i>						
Intercept	.0462	.003	.105	.006	.060	.003
Slope ($t-1$)	.00009	.00005	.00009 ^a	.00007	.00013	.00005
Intercept-slope ($t-1$)	-.0007 ^a	.0004	-.0016	.0007	-.0012	.0004
<i>Level 1 variance</i>						
Residual	.0258	.0016	.0345	.0020	.0196	.0011
Deviance with respect to	6.436; df = 2; $p = .040$ Poly 1; no random slopes		14.22; df = 2; $p = .0008$ Poly 3; no random slopes		9.329; df = 2; $p = .009$ Poly 4; no random slopes	

^aNon-significant term.

On average, self-perceptions showed a somewhat similar picture with a polynomial of the third degree as the most adequate model. In the self-perception of teachers, a somewhat longer period with linear growing influence at the start of the career could be seen and a stronger upward trend at the end, compared to students' perceptions.⁷

The results from Table 1 show that teachers differed significantly at the start in their self and students' perception scores, but also in their growth curves. Students' perceptions in the first year had an estimated score of .02 for a teacher with an average growth trajectory. A teacher who's Influence score was one standard deviation below the average teacher started with a score of -.23, teachers with one standard deviation above with .26. The estimated mean score after 6 years was about .22, the estimated score at the end of the career .26. So, according to the model, about 16% of the teachers started with students' perceptions of influence that were reached after 6 years by the average teacher. For self-perceptions Influence scores of teachers one standard deviation below or above the mean ranged from -.22 to .43. The estimated mean score after 6 years was about .31, the estimated score at the end of the career .46. So the individual variation in teacher-student relationships and in its development was considerable in the beginning of the teaching career.

According to teachers, their Influence score was on average higher during the entire period of 20 years than it was according to their students. The teachers' perceptions of the Influence Dimension at the start of the career were also more dispersed than the

⁷The trends found at the end of the career deserve some caution related to the fact that the number of measurements is relatively low in that period.

perceptions of students. Their mean view on the growth rate deviated somewhat from the students' mean view.

3.2. Proximity during the teaching career

3.2.1. Cross-sectional analyses

To describe differences between teachers with different amounts of experience we computed for every year of the career the mean Proximity (CO) score for the teachers' ideal and self-perceptions and for the students' perceptions. In Fig. 4 these scores are presented for the teachers (experience 1–36) and the student teachers (experience 0).

Fig. 5 shows that the Proximity scores for the highest class scores have a similar pattern as the mean scores. As with the Influence Dimension, we will therefore base our interpretations and conclusions about the relation between proximity and experience on the mean scores.

From Fig. 4 we can conclude that teacher ideal perceptions did not vary much across experience levels. To test differences between teachers with different amount of experience we divided the teachers in seven groups: 0–5, 6–10, 11–15, 16–20, 21–25, 26–30, and 31–36 years of experience. Analysis of variance showed only a very small, but significant effect of experience ($F = 3.41$; $df = 6$ 5329, $p = .002$, $\eta^2 = .004$). Post hoc comparisons (Scheffé) located significant differences only between groups of teachers with 0–5 and 16–20 years of experience.

Students' perceptions of actual behaviour showed greater variation for teachers across experience levels than ideal perceptions. Towards the end of the teaching career students' perceptions of teacher proximity seemed to decrease: the more experienced, the less proximity characterized the teacher–student relationship. When comparing students' perceptions of teachers with 0–5, 6–10, 11–15, 16–20, 21–25, 26–30, and 31–36 years of experience, analysis of variance showed a very small but significant effect of experience ($F = 5.734$; $df = 6$ 6181, $p = .000$, $\eta^2 = .006$). Post hoc comparisons (Scheffé) located significant differences between groups of teachers with 0–10 and more than 25 years of experience, with lowest mean scores for the two groups of teachers with more than 25 years of experience.

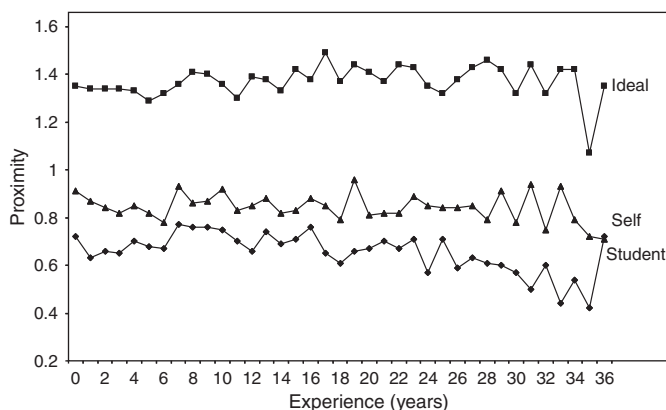


Fig. 4. Mean Proximity (CO) scores by experience level; ideal, self and students' perceptions.

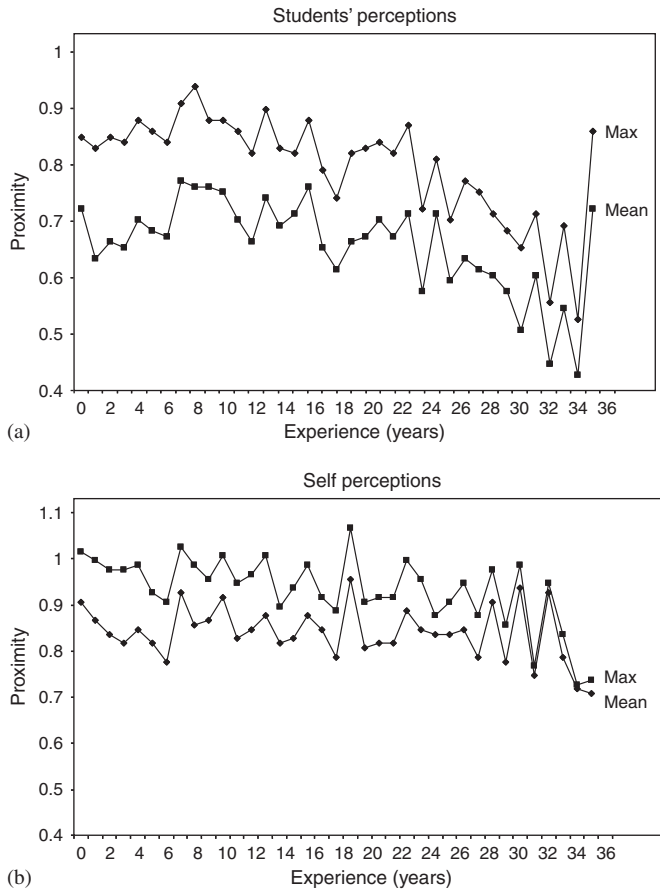


Fig. 5. (a) Maximum and mean Proximity (CO) scores by experience level; students' perceptions. (b) Maximum and mean Proximity (CO) scores by experience level; self-perceptions.

The significant effect found for self-perceptions of the seven groups of teachers is even smaller ($F = 2.11$, $df = 6$, 5745 , $p = .049$, $\eta^2 = .002$). Post hoc comparison showed no significant differences between specific groups.

3.2.2. Longitudinal analyses

To examine if conclusions about differences between teachers with different amounts of experience could be interpreted as changes during the professional career for individual teachers, we performed longitudinal analyses. Again, we used multi-level analyses to explore what model best fitted the data for the Proximity (CO) scores of teachers during the first 20 years of the professional career.

In Fig. 6 we present curves representing the averaged estimated start value and growth trajectory for the population of teachers of both teacher perceptions (ideal and self) and students' perceptions during the first 20 years of their careers, based on the most adequate models from these analyses. Compared to the results for the Influence Dimension the

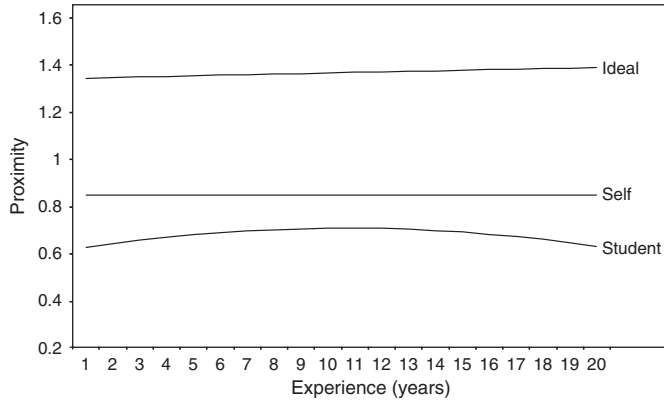


Fig. 6. Estimated growth curve Proximity (CO) scores first 20 years; ideal, self and students' perceptions.

Table 2
Models of growth for the proximity dimension

	Ideal perceptions		Self-perceptions		Students' perceptions	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Fixed effect						
Intercept	1.345	.009	.849	.008	.625	.014
(<i>t</i> −1)	.0024	.0012			.019	.005
(<i>t</i> −1) ²					−.0010	.0003
(<i>t</i> −1) ³						
(<i>t</i> −1) ⁴						
Random effect						
<i>Level 2 (co)variance</i>						
Intercept	.059	.005	.086	.005	.167	.011
Intercept-slope (<i>t</i> −1)	−.0006 ^a	.0007			−.017	.003
Slope (<i>t</i> −1)	.00028	.00009			.004	.001
Intercept-slope (<i>t</i> −1) ²					.0008	.0002
Slope (<i>t</i> −1)(<i>t</i> −1) ²					−.00017	.00006
Slope (<i>t</i> −1) ²					.000008	.000003
<i>Level 1 variance</i>						
Residual	.0372	.0023	.0589	.0033	.0602	.0035
Deviance	66.14; df = 2; <i>p</i> = .0000				38.40; df = 5; <i>p</i> = .0000	
with respect to	Poly 1; no random slopes				Poly 2; no random slopes	

^aNon-significant.

curves for the ideal, self and students' perceptions of the Proximity Dimension showed less variation during the first 20 years of the teaching career.

Parameter estimates for the most adequate models for ideal, self and students' perceptions are presented in Table 2.

For ideal perceptions, Fig. 6 shows a slightly upward straight line. The most adequate model (Table 2) for the ideal perceptions of Proximity was linear with random intercepts

and slopes. The model predicts that the ideal score of an average teacher went up from 1.35 in the first year to 1.39⁸ 20 years later. The results of [Table 2](#) show that the estimated mean value at the start of the career had a standard deviation of .24. So, according to the model most teachers (67%) had ideal scores between 1.10 and 1.59 in the first year of their professional career. The decline varied significantly from $-.051$ to $.055$ for teachers with one standard deviation above and below the score of the average teacher.

For students' perceptions, [Fig. 6](#) shows that on average Proximity scores slightly increased during the first 10 years of the career and became slightly lower afterwards. The mean Proximity value at the start of the career was .63, at about 10 years .70, and after 20 years .63. Results from the cross-sectional analyses suggest that the downward trend after 10 years of experience will go down further (and possibly more rapidly) after 20 years of experience. For students' perceptions, the most adequate model was of the second degree with a random effect of the linear and cubic term. The results of [Table 2](#) also showed significant variation in the students' perceptions for the Proximity scores for teachers at the start of their career. At the start the Proximity scores of teachers that were one standard deviation below and above the average teacher varied from .22 to 1.23. These effects were pretty large, but the variation in trajectory was small: when a teacher starts with a low Proximity score this will probably not rise very much.

For self-perceptions of teachers of their actual behaviour, the best model assumed no change in the perceived proximity during the first 20 years of the teaching career. This model shows however significant variation between teachers. For teachers one standard deviation above and below the average teacher, Proximity scores ranged from .56 to 1.14.

According to teachers, on average their Proximity was higher than it was according to their students during the entire period of 20 years. For the perceptions of the Influence Dimension teachers' perceptions were more dispersed than students' perceptions. For the Proximity Dimension however the teachers' perceptions were less dispersed than students' perceptions.

3.3. *Interpersonal profiles and experience*

[Table 3](#) characterizes teachers of the cross-sectional data set by means of interpersonal profiles based on students' perceptions (see Wubbels & Brekelmans, this issue). Based on (mainly the Influence) results of the present study we differentiated between five groups of teachers: student teachers, teachers with 1–3 years of experience, 6–10, 11–20, and more than 20 years of experience.

The results for students' perceptions in [Table 3](#) show that at the start of the career the Tolerant and the Uncertain/Tolerant profile were found most frequently. More student teachers than 1–3 year teachers conformed to the Tolerant and Uncertain/Tolerant type. The number of teachers having these profiles decreased as teachers became more experienced. During the first decade of the teaching career, the number of the more structured and task-oriented authoritative and directive profiles increased. This is due to the increasing influence of teachers as experience grew. Towards the end of the teaching career, the number of teachers with a Repressive profile, with high scores on the Influence dimension and low scores on the Proximity Dimension (see Wubbels & Brekelmans, 2006, this issue) increased. According to teachers themselves, the more structured and task

⁸Values for Proximity scores can range from -2.60 to 2.60 .

Table 3

Percentages of students' perceptions of interpersonal profiles for five groups of teachers with different experience levels

Profile	Experience (years)				
	0 ^a	1–3	4–10	11–20	> 20
Directive	7	16	22	21	23
Authoritative	10	20	27	25	22
Tolerant and authoritative	14	16	16	15	14
Tolerant	34	22	19	18	16
Uncertain/tolerant	25	12	7	6	6
Uncertain/aggressive	6	6	3	4	4
Repressive	0	1	2	4	7
Drudging	4	7	5	7	8
Total	100	100	101	100	100

^aStudent teachers.

oriented profiles were realized by more teachers. These profiles were also realized earlier in the professional career. Of all ideal perceptions of the teacher–student relationship, about three fourths (74%) was most similar to the Tolerant and Authoritative profile, while 22% was most similar to the Authoritative type. At all experience levels more than 90% of the teachers preferred one of these two relatively similar interpersonal profiles.

4. Discussion

This paper has presented a description of changes in teacher–student relationships during the teaching career in terms of averaged changes and by describing how individual teachers varied around this average. These results provide a baseline to analyse changes of individual teachers during their career and can help diagnose special situations of individual teachers at a given point in their career or regarding their development in a certain period. Beside that, insight in the changes that teachers go through during their careers can help in designing professional development activities for teachers that meet specific needs in specific parts of their careers.

From the results of our study we conclude that on average teachers' ideal perceptions of influence and proximity were rather stable during their career. Students' and teachers' perceptions of the amount of teacher influence on average grew in the first 6 (mainly the first 3) years of the average teaching career. The results suggest that due to growing influence, most teachers learned to cope with problems in providing structure and maintaining order in classrooms in the first years of their career. Teachers' self-perceptions and students' perceptions of proximity in the teacher–student relationship hardly changed in the first 20 years of the career. The decline in proximity towards the end of the career can be an indication of an older teacher problem in the teacher–student relationship.

We think the following could provide an explanation for these results. At the start of their careers, most teachers are about 20–25 years old and have not, to any large degree, gained experience in leadership roles. From this point of view the professional role does not coincide perfectly with their stage of personal development. They did not yet have the

opportunity to develop an adequate behavioural repertoire and cognitions that are necessary when providing leadership to other people. This can result in students' perceptions of the teacher–student relationship as Uncertain/Tolerant or Tolerant. Especially teachers with an Uncertain/Tolerant interpersonal style have relatively low Influence scores. They frequently meet situations unwittingly allowing students to determine what shall be done. These situations waste energy. This urges teachers to do something about it. This need for change is reinforced by the ideal perception of beginning teachers, mainly a classroom situation with the teachers (themselves) in control. Through daily classroom practice beginning teachers develop the necessary behavioural repertoire and cognitions and, as a consequence, more successful patterns.

According to the preceding interpretation, beginning teachers mainly attribute (consciously or unconsciously) problems when interacting with students to the influence area. The ability to empathize with students (recent peers) and to show co-operative behaviours is considered by them to be a less problematic area. The greater attention to dominant behaviour is probably reflected in the fact that there is more dispersion with teachers' perceptions of the Influence Dimension than with students' perceptions, while students perceive larger differences between teachers on the Proximity Dimension (e.g. Levy, den Brok, Wubbels, & Brekelmans 2003; den Brok, Levy, Rodriguez, & Wubbels, 2002). With the greater attention to dominant behaviour practice and experimentation related to the Proximity Dimension of interpersonal behaviour fade somewhat into the background.

Towards the end of the teaching career there is a decreasing tendency in proximity in the teacher–student relationship and a growing number of teachers with a repressive profile. Wubbels, Brekelmans, den Brok, and van Tartwijk (2006) describe a teacher with a repressive profile as follows:

Students in the Repressive teacher's class are uninvolved and extremely docile. They follow the rules and are afraid of the teacher's angry outbursts. S/he seems to overreact to small transgressions, frequently making sarcastic remarks or giving failing grades. ... The atmosphere is guarded and unpleasant, and the students are apprehensive and fearful. Since the Repressive teacher's expectations are competition-oriented and inflated, students worry a lot about their exams. The teacher seems to repress student initiative, preferring to lecture while the students sit still. They perceive the teacher as unhappy and impatient and their silence seems like the calm before the storm.

Especially some very experienced teachers tend to become stricter when they get older. Because of the distance, both emotionally and in age, older teachers may be less connected with the students' life style. Therefore, these teachers may become more and more dissatisfied with students' behaviour. These high demands on and low connection with students can provoke student protest that at first can be handled easily by these experienced teachers, but gradually can become a real threat for a good classroom atmosphere. As a consequence, these teachers may feel that they have to act even more demanding and admonishing. This can stimulate a negative communicative spiral: the teacher showing ever more oppositional behaviour as a reaction on the students' protest behaviour. So the origin of the decrease in co-operative behaviour may be inadequate cognitions about strict behaviour and lack of skills to give students responsibility. Training to give students freedom and responsibility thus may be a prominent part of in-service

education for very experienced teachers. In addition, training on setting norms and standards in a clear, but not provocative way may be useful. So, training and support concerning the teacher–student relationship are essential for experienced as well as beginning teachers.

The interpretation of the upward trend in dominant behaviour at the beginning of the teaching career and of the decreasing tendency in proximity at later stages can be connected to Huberman's (1993) description of modal sequences in the professional engagement of teachers during their careers. In his model, Huberman describes several pathways from the start of the career (a phase covering usually the first 3 years) until the final phase that is reached when teachers have 30–40 years of experience. The first phase is characterized by survival and discovery. "The survival aspect renders what is commonly called the 'reality shock' of the initial year ... and its attending dilemma's: continuous trial and error, preoccupation with oneself and one's sense of adequacy, wide discrepancies between instructional goals and what one is actually able to do in the classroom, inappropriate instructional materials, wide swings from permissiveness to excessive strictness, concerns with discipline and management that eat away at instructional time, recalcitrant pupils and the like" (Huberman 1993, pp. 96–97). The discovery theme in this phase includes, among others, the rapid pace of learning of most beginning teachers. The second phase, stabilization, is reached after 4–6 years, and involves the teacher having got the feeling to be a real teacher and having been induced to the professional guild. Instructional mastery has been reached, including a systematic effective and stimulating style of teaching, and workable techniques of classroom management that resolve most problems before they erupt. Several intermediate phases have been found such as experimentation (years 7–18), stock-tacking (years 7–18), serenity (years 19–30) and conservatism (years 19–30). The final phase is called disengagement. One of the features of disengagement is a diminished involvement with the job that, e.g. might result in less interest in the lives of pupils. Huberman describes how some teachers may move through some combination of the phases and other teachers through other combinations. For our results the first two phases and the last phase are important. According to Huberman, these phases apply to many teachers. The upward trend on the influence dimension can be interpreted clearly as coming to grasp with the survival problems in the first 3 years of their career with a sharp learning curve towards stabilization when young teachers have mastered the skill to organize the classroom and be in the role of leader of a class. The diminishing proximity scores at later stages in the career can be interpreted as a sign that the phase of disengagement has begun.

In this study we described averaged developmental trajectories for the teacher–student relationship during the teaching career. These can be seen as the expected development for individual teachers. We also found developmental trajectories to vary in level and shape. When these differences are found, it is of interest for further research to identify characteristics of teachers that can explain these differences. Examples of such characteristics are: sex, age, education, the level of proximity and influence at the start of the career. This can help to identify individuals who are more likely to follow a different development track than the average one.

In this paper, careers have been described using students' and teachers' perceptions gathered with questionnaires on various moments during the careers of teachers. We consider these types of descriptions an important account of teachers' careers. However, to a better understanding of teachers' professional development these kind of data have to be

combined with more subjectively conceptualized descriptions based on the way teachers themselves (retrospectively) experience and understand their careers (a.o. Cheung, 2005; Kelchtermans, 1993; Troman & Woods 2000).

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