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Chapter 3

Institutional background: A comparison of teachers from research universities and those from universities of applied sciences³

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Abstract

We explored how the institutional backgrounds of university teachers influence their beliefs about what the role of research in university teaching should be and their perceptions of how they have managed to incorporate research into their actual teaching. A total of 132 Dutch university teachers from research universities and from universities of applied sciences participated in our survey study. Teachers from both types of institutions highly valued the role of research in teaching. The teachers from the research universities were more positive about the incorporation of research into their teaching than the teachers from the universities of applied sciences. To explain these differences, the institutional backgrounds of the teachers were investigated in terms of their perceived research support and the institutional research culture. In addition, a couple of the individual background variables of the teachers were explored, including their time spent doing research, educational background and research experience. Research support and research culture were found to be particularly and highly relevant for the teachers at the universities of applied sciences. The teachers with higher educational backgrounds and more research experience — at the research universities — were more positive about how they incorporate research into their actual teaching. We conclude that both institutional and individual background variables play a significant role in the incorporation of research into university teaching, particularly in the case of universities of applied sciences.

3.1 Introduction

During the past decades, both research universities (RU) and universities of applied sciences (UAS) — with the latter also known as polytechnics, *Fachhochschulen* or vocational higher education institutions — have seen a growing emphasis on research. While research universities always seek to maintain their academic status, identity and research focus, universities of applied sciences are ‘stretching’ their mission to incorporate practice-oriented research into their curricula (Brew, 2001; Griffioen & de Jong, 2013; Kyvik & Skodvin, 2003). In addition to this expansion and growing, global competition in the research world in general, universities are increasingly being called to involve undergraduate students in research. This emphasis on student involvement in research can be seen in the US (Boyer Commission, 1998), the UK (Healey & Jenkins, 2009), Australia (Wilson, Howitt, Wilson, & Roberts, 2012) and the Netherlands (van der Rijst et al., 2013). The call for student involvement in research has also challenged university teachers to rethink not only their research and teaching practices but re-evaluate their beliefs about the role of research in teaching.

Although close connections between research and teaching are valued by both teachers and universities, the implications of having to further strengthen these connections for university teaching are far from clear. The attempts of teachers to combine research and teaching are often hindered by barriers which can stem from a number of factors. Differences exist in the organization and management of the teaching and research domains (Brew, 2010; Griffiths, 2004). Differences exist in the beliefs, knowledge and practices of teachers within the domains of teaching and research (Visser-Wijnveen, van Driel, van der Rijst, Visser, & Verloop, 2012). And differences exist within student populations with increased numbers of students and increasingly diverse populations (cf. Scott, 2010). Greater insight into these barriers and just how teachers deal with them is thus needed to promote a stronger link between university research and teaching.

The efforts of university teachers to promote strong links between research and teaching are also influenced by their beliefs about the *ideal* way of doing this and thus their practices of bringing research and teaching more firmly together (cf. Robertson & Bond, 2001; Rowland, 1996). Differences in how universities and, in particular, RU versus UAS organize their research and teaching can also shape teacher beliefs (cf. Lucas, Healey, Jenkins, & Short, 2008; Robertson & Bond, 2001; Rowland, 1996). Moreover, the educational backgrounds and research experiences of individual teachers can also differ greatly and shape their ideas about how research and teaching should relate.

In the present study, we explored the beliefs of university teachers with regard to what they believe the role of research should be in their own teaching (i.e., the ideal role). We then explored teacher perceptions of how they incorporate research into their actual teaching practice (i.e., the actual role). Finally, teacher

perceptions of the research support and research culture within their institutions were explored along with their individual backgrounds in relation to their perceptions of incorporating research into their actual teaching.

3.1.1 The research-teaching nexus

There is a common belief that research and teaching are positively related (e.g., Deem & Lucas, 2007; Neumann, 1992). However, when research and teaching performance are examined empirically, a strong association between research productivity and teaching quality is not found. A meta-analysis by Hattie and Marsh (1996), for instance, showed a near-zero correlation between research productivity and teaching quality. In most of the studies included in their analysis, the quality of research was measured via productivity (i.e., publication counts) and the quality of teaching measured via student evaluations. Whether these are adequate quality measures is open to discussion, however (cf. Robertson & Blackler, 2006).

Other research has examined the beliefs of teachers and students with regard to what the relationship between research and teaching should be. Most of the university teachers in the studies believe that a close relationship should exist between research and teaching (e.g., Neumann, 1992; Robertson & Blackler, 2006). They think that a strong research-teaching nexus can benefit student learning (e.g., Brew, 2003; Clark, 1997; van der Rijst et al., 2013). And students are found to appreciate research-focused teaching and report being stimulated to learn by the enthusiasm of teachers for research (e.g., Healey et al., 2010; Hunter et al., 2007).

The beliefs of both teachers and students about the research-teaching nexus thus appear to contradict the empirical findings regarding the relationship between research and teaching, which is little or zero.

One possible explanation for this discrepancy in the research findings may lie in research and teaching activities being considered as separate activities while the connection between the two may be more apparent when a context is examined in which both research and teaching are clearly present (Wilson, Howitt, Wilson, & Roberts, 2012).

Another possible explanation for the detected discrepancy in the research findings may lie in the complexity and variability of the research-teaching nexus when situated in different disciplinary domains. The beliefs of teachers, their curricular concerns and their instructional practices are all known to relate to their disciplinary backgrounds (cf. Stodolsky & Grossman, 1995). This means that teachers from the sciences, for instance, typically see the relationship between research and teaching very differently than teachers from the humanities and that these differences may influence their beliefs about how research and teaching should be linked as well (e.g., Visser-Wijnveen, van der Rijst & van Driel, 2012). In the present study, we therefore examined a single disciplinary domain, namely,

the language and culture departments of universities. Almost no empirical literature was available on the research-teaching nexus for this domain, except for a few related studies on how language teachers understand research and teaching in general (e.g., Borg, 2009; Lucas et al., 2008).

A third possible explanation for the observed discrepancy may be the influence of specific conditions on teacher beliefs and their actions. That is, specific contexts may influence teacher beliefs which then, in turn, teacher actions. Teacher beliefs have been argued to mediate their knowledge acquisition, task definitions and actual actions (Pajares, 1992). Different beliefs about the relationship between research and teaching may thus produce different actions for the incorporation of research into teaching.

In the present study, we therefore decided to focus on teachers' beliefs about the role of research in teaching as a first step towards clarifying the discrepancy in the research findings concerned with the research-teaching nexus. In doing this, however, we will also explore the variation in teachers' beliefs about the research-teaching nexus in relation to institutional context and the individual backgrounds of the teachers.

3.1.2 The relevance of institutional background

According to Smylie (1995), organizational conditions are assumed to be closely related to individual learning, thinking and behaviour. Marsh and Hattie (2002) and others similarly argue that the institutional context most likely mediates the relationship between research and teaching (e.g., Feldman, 1987; Griffiths, 2004; Robertson & Bond, 2001). Two sets of conditions appear to be of particular relevance for understanding the influence of institutional background on teachers' beliefs and their teaching practices: the structural and cultural conditions (Little, 2012; Smylie, 1995). Structural conditions refer to the time, resources, workload, evaluation and feedback procedures and policies which are structurally organized in an institution (Imants & van Veen, 2010). Cultural conditions refer to a shared school vision, culture of collaboration, professional learning climate, professional capacity and collective decision making (cf. Little, 2012).

In many universities, research and teaching are driven apart by distinct funding mechanisms and distinct organizational structures (Brew, 2010). Robertson and Bond (2001) also assert that legislative requirements, institutional change and political uncertainty can influence teachers' beliefs and their practices about the relationship between research and teaching. Lucas et al. (2008) argue that institutional culture in the form of academic affiliation, for example, may actually be the key to understanding university teachers' experiences with and perceptions of the relationship between research and teaching. However, none of these studies explain how exactly the institutional conditions influence teacher beliefs about the role of research in their teaching and the way they actually integrate research into their current teaching practice.

In order to investigate the influence of institutional context on teachers' beliefs about the relationship between research and teaching, we compared research universities (RU) to universities of applied sciences (UAS). The two types of institutions are organized differently in terms of content, resources, workloads, evaluation of functioning and policies for both teaching and research. RU tend to be more science- and academically oriented while UAS tend to be more practice- and vocation oriented (Harwood, 2010). Most UAS are primarily teaching institutions (Huisman, 2008), although research activities are becoming more and more a core aspect of faculty tasks, in addition to teaching, due to an ongoing shift in the mission of universities today (Kyvik & Skodvin, 2003). Students are increasingly being given assignments which involve research activities (Healey & Jenkins, 2009). As a consequence, UAS must tackle policy issues concerned with research facilities, distribution of resources, educational aims and recruitment of staff (Kyvik & Skodvin, 2003).

RU and UAS also differ with respect to implicit aspects of the institutional context like research culture, research aims and the perceived value of research. The research culture in UAS is currently less developed than in RU (Huisman, 2008). UAS are nevertheless in a state of transition and their shared research aim is to advance professional practice by expanding the skills of professionals and involving them in practice-oriented research (Griffioen & de Jong, 2013). Research universities have high standards for their teaching, but their research is mostly aimed at developing new knowledge. Particularly in the Dutch binary higher education system, RU and UAS differ from each other in a systematic way, particularly with regard to the aims, content and status of research within the institutions (cf. de Weert, 2006). So we assumed that the institutions differ sufficiently from each other to help us explore how their structural and cultural characteristics affect the beliefs of teachers about the role of research in their teaching.

3.2 Research questions

- What do teachers at research universities and universities of applied sciences believe about the ideal role of research in university teaching?
- How do teachers at research universities and universities of applied sciences perceive the actual role of research in their teaching practice?
- How do the perceptions of university teachers regarding the actual role of research in teaching relate to their institutional and individual backgrounds?

3.3 Method

3.3.1 Procedure and questionnaire

In this chapter we reported on a sub-set of the survey data ($n = 132$). This part of the data were collected via distribution of an online questionnaire to Dutch university teachers between February 2012 and May 2012. Invitations for online completion of the questionnaire were sent to teachers with book vouchers offered as an incentive for completion of the questionnaire.

For the development of two scales pertaining to perceived support for research and to research culture within the institution for institutional background, we drew upon studies by Borg (2009) and Lucas et al. (2008). Regarding research support, we asked the teachers about institutional support for their research in terms of research training provided and access to research resources. Regarding research culture, we asked the teachers about perceptions of the general importance of research among their colleagues at the institution. We focused on perceptions rather than specific elements of research support and research culture because we assumed that it is the perception instead of the actual research support and culture that may influence teachers to incorporate research in teaching (see section 1 in Appendix 1).

The other parts of the questionnaire were already described in detail in Chapter 2. To avoid repetition, we omitted the description of the development process and included here only the content of the questionnaire. The core section consisted of seven scales addressing the role of research in teaching: teachers' beliefs about the ideal role of research in teaching and teachers' perceptions of the actual role of research in their own teaching. The seven scales for this section of the questionnaire were: 1) developing creative disposition; 2) developing critical disposition; 3) fostering student research interests; 4) enhancing research skills; 5) prompting student reflection on research; 6) familiarizing students with current research; and 7) encouraging student participation in research. The same questions were posed with regard to the teachers' ideal and actual teaching situations (see section 2 in Appendix 1).

The questionnaire included also items which inquired about the individual backgrounds of the teachers (i.e., gender, age, educational background, type of institutions teachers work for, years of research experience, years of teaching experience and time spent doing research). An overview of the scales and their measurement reliabilities can be found in Table 3.1.

The questionnaire was pilot tested with a group of university teachers in November 2011. Senior researchers and thus academics with extensive research experience were asked to give us feedback on the clarity of the questionnaire items and those concerned with institutional support and culture in particular. They were also asked about any other scales which they might like to see included in the questionnaire.

Table 3.1

Measurement scales and their reliabilities (Cronbach's alphas) for beliefs and perceptions regarding the role of research in teaching

Scale	α	Sample item
<i>Role of research in teaching</i>		
Ideal/Beliefs		
		<i>Ideally</i> in my teaching I would...
Creative disposition	.63	• foster students' sense of innovation.
Critical disposition	.72	• stimulate students not to be easily satisfied with an explanation.
Student research interests	.70	• encourage students' interest in research.
Research skills	.67	• increase students' ability to conduct research.
Reflection on research	.84	• stimulate students to learn about research findings.
Current research in the domain	.74	• make links to the current research practices.
Students as participants	.86	• ask students to make a contribution to research.
Actual/Perceptions		
		In my <i>actual</i> teaching practice, I...
Creative disposition	.67	• foster students' sense of innovation.
Critical disposition	.76	• stimulate students not to be easily satisfied with an explanation.
Student research interests	.77	• encourage students' interest in research.
Research skills	.72	• increase students' ability to conduct research.
Reflection on research	.83	• stimulate students to learn about research findings.
Current research in the domain	.83	• make links to the current research practices.
Students as participants	.85	• ask students to make a contribution to research.
<i>Institutional background</i>		
Research support	.80	We are given support to improve our research competencies (through workshops, seminars etc.)
Research culture	.81	The general opinion is that research can enhance the credibility of an institution.

3.3.2 Participants

Teachers who work in the language and culture departments of Dutch universities were surveyed. We compared research universities (RU) and universities of applied sciences (UAS). Dutch universities were particularly attractive for the conduct of our survey because the clear binary higher education system in the Netherlands separates RU from UAS specifically in terms of the aims, content and status of research within the institution (cf. de Weert, 2006). Given that discipline may strongly influence teacher beliefs and their perceptions of the role of research in

teaching (cf. Stodolsky & Grossman, 1995; Visser-Wijnveen, van der Rijst & van Driel, 2012), we focused in this initial survey of teachers on only the language and culture departments of the universities. This was done to minimize the possible effects of variations in academic discipline.

Altogether 60 teachers from six research universities and 253 teachers from nine universities of applied sciences were invited to participate in this survey study. The universities were located in different cities across the Netherlands. In the end, 132 valid responses were obtained: 41 from the RU (response rate 68%), and 91 from the UAS (response rate 36%). With regard to gender, 31% of the respondents were male and 69% female. Age was distributed as follows: 7.6% 30 years or less; 11.5% between 31 and 35 years; 23.7% between 36 and 45 years; 33.6% between 46 and 55 years; and 23.7% 56 years or older. The teachers from RU and UAS had equal amounts of teaching experience. For both types of universities, about two thirds of the respondents had more than 15 years of teaching experience.

The RU respondents had a higher educational background level, had more experience with the conduct of research and also spent more time doing research than the UAS respondents. An overview of these background characteristics of the teachers is presented in Table 3.2.

Table 3.2
Overview of teacher background information

	Research universities (<i>n</i> = 41) %	Universities of applied sciences (<i>n</i> = 91) %
Educational background		
BA	0	4.8
MA	53.7	86.9
PhD	46.3	8.3
Research experience (years)		
Less than 3	34.1	67.8
Between 3-15	36.6	28.9
More than 15	29.3	3.3
Time spent doing research (percentage of total work time)		
10% or less	50.0	72.5
15% or more	50.0	27.5

3.3.3 Data analysis

We used nonparametric tests in the analysis of our data because the assumptions of normality and homogeneity of variance were not met by most of the scales in our questionnaire. In order to determine the similarities and differences in the ideal and actual role of research and thereby answer both our first and second research questions, we applied Wilcoxon signed-rank tests and Mann-Whitney tests. In

order to determine how the perceptions of university teachers with regard to incorporating research in their actual teaching relate to their institutional backgrounds and thus answer part of our third research question, Spearman's correlation coefficients were applied. Finally, to determine how the perceptions of the university teachers with regard to incorporating research in their actual teaching relate to their individual backgrounds and thus answer the other part of our third research question, we applied both Mann-Whitney tests and Kruskal-Wallis tests.

3.4 Results

3.4.1 *The role of research in teaching*

In order to answer our first and second research question, we examined the similarities and differences in the beliefs of the teachers from the RU and UAS with regard to the role which research should play in teaching (ideal role) and their perceptions of how well they have managed to incorporate research into their own teaching practice (actual role).

Similarities between the RU and the UAS teachers

The beliefs of the RU teachers and the UAS teachers in our study were very positive and rather similar with regard to the ideal role of research in university teaching (see the upper half of Table 3.3). The only exception was a scale concerned with the role of research in fostering student interests to do research themselves (the third scale).

A major gap between the beliefs (i.e., ideals) and the perceptions (i.e., actuals) of both the teachers from the RU and the UAS was found. For all scales, very large effects were found, moreover (r above .50 for all seven scales; results not reported in table).

There was also a marked agreement among the teachers on how they ranked different aspects of the role of research in teaching (see Table 3.3). In both the ideal and actual teaching situations, developing a creative and critical stance on the part of students ranked highest while encouraging students to participate in research ranked lowest.

Differences between the RU and the UAS teachers

Significant differences were found in the perceptions of the actual role of research in their teaching (see bottom half of Table 3.3). The RU teachers scored significantly higher concerning the role of research in their actual teaching than the UAS teachers, especially regarding critical disposition, student research interests, research skills, reflection on research and current research in the domain (medium effect sizes, r ranging from -.25 to -.35).

Table 3.3

The role of research in teaching: Comparison of beliefs about and perceptions of the RU teachers and the UAS teachers (Mann-Whitney test)

Scale		RU		UAS		Z	r
		n	Median	n	Median		
<i>Ideal/Beliefs</i>	Creative disposition	36	4.67	83	4.33	-0.47	-.04
	Critical disposition	37	4.50	83	4.50	-1.42	-.13
	Student research interests	39	4.33	86	4.00	-1.97*	-.18
	Research skills	36	4.33	83	4.00	-1.74	-.16
	Reflection on research	36	4.00	83	4.00	-1.76	-.16
	Current research in the domain	36	4.00	83	4.00	-1.04	-.09
	Students as participants	38	3.75	82	3.75	-1.21	-.11
<i>Actual/Perceptions</i>	Creative disposition	34	3.83	81	3.67	-1.10	-.10
	Critical disposition	34	3.88	81	3.50	-3.11**	-.29
	Student research interests	36	3.67	80	3.00	-2.82**	-.26
	Research skills	35	3.33	78	3.00	-2.64**	-.25
	Reflection on research	35	3.50	79	2.75	-3.22**	-.30
	Current research in the domain	35	3.33	78	2.83	-3.69***	-.35
	Students as participants	34	2.50	72	2.38	-1.62	-.16

* $p < .05$. ** $p < .01$. *** $p < .001$.

Inspection of the size of the gaps between the median scores of the teachers for the ideal versus the actual also indicated marked differences between the RU and UAS teachers. We therefore further explored these differences using Mann-Whitney tests (see Table 3.4). Significant differences in the ideal-actual gap for the RU teachers versus the UAS teachers were apparent for the following scales: critical disposition, student research interests, research skills, reflection on research and current research in the domain. For these five scales, the UAS teachers showed a significantly greater gap between their beliefs (i.e., ideals) and perceptions (i.e., actuals) than the RU teachers. Particularly striking in this regard was the gap for the scale “current research in the domain” ($r = -.33$).

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Table 3.4

Differences in the size of the gap between ideal and actual experiences of RU versus UAS teachers with incorporating research into teaching (Mann-Whitney test)

Scale	RU		UAS		Z	r
	n	Median	n	Median		
Creative disposition	34	.33	81	.67	-1.70	-.16
Critical disposition	34	.50	81	1.00	-2.69**	-.25
Student research interests	36	.67	80	1.00	-2.43*	-.23
Research skills	35	.67	78	1.00	-1.96*	-.18
Reflection on research	35	.75	79	1.00	-2.60**	-.24
Current research in the domain	35	.67	78	1.33	-3.53***	-.33
Students as participants	34	.88	72	1.00	-0.88	-.09

* $p < .05$. ** $p < .01$. *** $p < .001$.

3.4.2 Individual backgrounds

To gain more insight into the observed differences in the teachers' perceptions of the actual role of research in their own teaching, the educational backgrounds, research experience and time spent doing research were analysed together with the perceptions of the RU versus UAS teachers (see Table 3.5).

Table 3.5

Individual backgrounds of teachers in relation to perceptions of the role of research in their actual teaching (Mann-Whitney test and Kruskal-Wallis test)

Scale	RU			UAS		
	EB	RE	TR	EB	RE	TR
Creative disposition	ns	ns	ns	ns	ns	ns
Critical disposition	ns	+	ns	ns	++	ns
Student research interests	++	+	+	ns	+	ns
Research skills	+	+	++	ns	++	ns
Reflection on research	+	++	+	+	+++	ns
Current research in the domain	ns	ns	ns	ns	++	ns
Students as participants	ns	ns	++	ns	+++	ns

Note. EB = educational background (Mean ranks: Master's, PhD); RE = years of research experience (Mean ranks: less than 15 years, more than 15 for RU teachers; less than 3 years, more than 3 years for UAS teachers); TR = time spent doing research (Mean ranks: 10% or less, 15% or more).

ns $p > .05$. + $p < .05$. ++ $p < .01$. +++ $p < .001$.

Mann-Whitney tests were carried out for educational background and time spent doing research; the Kruskal-Wallis test was carried out for research experience. On the whole, we found higher educational background, more research experience and more time spent doing research to be associated with more positive perceptions of the role of research in teaching practice. The teachers with a PhD (i.e., higher educational background) generally perceived themselves as having better integrated research into their teaching than the teachers with a Master's degree. Those RU teachers with more than fifteen years of research experience were significantly more positive about the actual role of research in their teaching than those with less research experience. Somewhat comparable, those UAS teachers with more than three years of research experience were significantly more positive about the actual role of research in their teaching than those with less than three years of research experience. Regarding the time spent doing research by the teachers, significant differences were found between those RU teachers who spent 10% or less of their working time on research and those who spent 15% or more. No significant differences among the UAS teachers were found for time spent doing research in relation to their perceptions of the role of research in their actual teaching.

3.4.3 Institutional background

We next investigated the potential associations between teachers' perceptions of research support and the institutional research culture in relation to their perceptions of the actual role of research in their teaching.

As Table 3.6 shows, the teachers at both types of universities *positively* viewed the research support and research cultures within their institutions. They both valued the institutional research culture *more* than institutional research support. And they had similar perceptions of the institutional research support.

Table 3.6

Perceptions of research support and research culture by university teachers (Mann-Whitney test)

Scale	RU		UAS		Z	r
	n	Median	n	Median		
Research support	40	3.25	91	3.50	-1.36	-.12
Research culture	39	4.20	91	3.80	-4.11***	-.36

*** $p < .001$.

Despite these general similarities, the RU teachers perceived significantly stronger research cultures in their institutions than the UAS teachers (medium effect size: $r = -.36$).

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To further explore how teacher perceptions of the research support and research culture relate to their perceptions of the actual role of research in their own teaching, correlations were calculated for each of the scales (see Table 3.7).

Table 3.7

Teacher perceptions of institutional research support and institutional research culture in relation to their perceptions of the actual role of research in their teaching practice (Spearman's rho correlation coefficients)

Scale	Research support		Research culture	
	RU	UAS	RU	UAS
Creative disposition	.12	.28**	-.09	.32**
Critical disposition	.15	.22*	.16	.30**
Student research interests	.00	.20*	.11	.27**
Research skills	.17	.22*	.21	.09
Reflection on research	.25	.34**	.26	.30**
Current research in the domain	.22	.41**	.42**	.22*
Students as participants	.23	.26*	.10	.12

** . Correlation is significant at the .01 level (1-tailed).

* . Correlation is significant at the .05 level (1-tailed).

For the UAS teachers, perceptions of institutional research support correlated significantly with all of the “actual role of research in teaching” scales. The r_s ranged from .20 to .41, which indicate small to medium effects. Their perceptions of the institutional research culture also correlated significantly with most aspects of their perceptions of the actual role of research in their own teaching. The r_s ranged from .22 to .32, indicating small to medium effects. Two scales were an exception (research skills, students as participants).

For the RU teachers, only their perceptions of the institutional research culture correlated significantly — and strongly — with their perceptions of the role of research in their own teaching but only for the scale familiarize students with current research in the domain ($r_s = .42$).

3.5 Conclusions and discussion

With regard to our first two research questions, namely university teachers' beliefs about the ideal role of research in teaching and their perceptions of the actual role of research in their own teaching, we found the RU teachers (the teachers at research universities) and the UAS teachers (the teachers at universities of applied sciences) to resemble each other in four aspects. First, both groups were of the same opinion that ideally research should be integrated into university teaching as

was specified in the seven scales. Second, they both show a significant gap between what they believe about the ideal role of research in teaching and their perceptions of the actual role of research in their own teaching. Third, both the RU teachers and the UAS teachers consider the development of a creative disposition and a critical disposition to be the most important aspects of both their beliefs about and perceptions of the role of research in teaching. Fourth, they both consider student participation in research to be the least important aspect of the role of research in teaching. Also this appeared from both their beliefs and perceptions.

Despite these major similarities, the RU teachers reported a significantly more important role of research in their actual teaching than the UAS teachers. The gap between the teachers' beliefs about the ideal role of research in teaching and the teachers' perceptions of the role of research in their actual teaching was significantly greater, moreover, for the UAS teachers than for those RU teachers.

To explain the two aforementioned differences, we investigated the teachers' individual and institutional backgrounds. We found that a higher educational background, more research experience, and more time spent doing research were associated with a more positive perception of how teachers incorporate research into their actual teaching. These were all characteristics of the RU teachers. Although the teachers from the two groups of universities showed similar perceptions of institutional research support, the RU teachers perceived a stronger research culture. Together with the finding that the RU teachers had stronger positive perceptions of integrating research into their actual teaching than the UAS teachers, institutional background appears to be critical. This conclusion is further confirmed by the finding that both research support and research culture were associated with the UAS teachers' perceptions of how well they could integrate research into their own teaching.

3.5.1 The ideal and actual role of research in teaching

Our most striking finding is that both the RU teachers and the UAS teachers were similarly positive about the ideal role of research in teaching. This similarity has been rarely noted or discussed in the relevant research literature. While university teachers, in general, have been noted to believe in a close connection between research and teaching (Neumann, 1992; Robertson & Bond, 2001), most of the studies to date have not distinguished between RU and UAS teachers. Our study showed the UAS teachers to consider, in an ideal situation, the role of research in teaching to be just as important as the RU teachers.

The finding of shared beliefs about the importance of research in teaching across universities may stem from the increased attention being paid to this and increased endeavours to do this at UAS in recent years. As a result of the ongoing academic drift and mission stretch, teachers and students at UAS are increasingly being expected to be involved in research endeavours and assignments (Brew, 2001; Griffioen & de Jong, 2013; Kyvik & Skodvin, 2003). Research skill and

experience have, moreover, begun to weigh more heavily in the selection procedures for teaching staff at UAS (de Jong & de Jager, 2007). The results of our survey study indicated that such efforts have also affected teachers' beliefs about the role which research should play in their own teaching.

Such a growing emphasis on research in UAS is also reflected in our finding regarding the way teachers perceived the research support within their own institutions. It might be surprising that the RU teachers and the UAS teachers perceived research support in a similar way, because it is to be expected that research support is higher in research universities than in professional ones. It should be noted that we measured the way teachers perceive research support rather than the actual support provided. In other words, the RU teachers were likely to view research support less positively, since they were more accustomed to the level of research support provided in their institutions, and the UAS teachers were likely to have more positive perceptions because in their institutions research support was something newly introduced.

Another similarity between the RU and UAS teachers was that they both observed a significant gap between their beliefs about the ideal role of research in teaching and their perceptions of the actual role of research in their own teaching. This gap resembles the discrepancy observed for expectations of a close association between research and teaching (e.g., Robertson & Bond, 2001), on the one hand, and little or near zero correlation between research productivity and teaching quality (e.g., Hattie & Marsh, 1996) on the other hand. In future investigations, into the relationship between research and teaching, explicitly addressing the differences between beliefs in the ideal situation and perceptions regarding actual practice could contribute to a better understanding of the ambiguous relationship between research and teaching.

3.5.2 Relations of teacher perceptions of the actual role of research in their current teaching to institutional background

The RU and UAS teachers differed in their perceptions of how they have managed to integrate research into their current teaching practices (i.e., perceptions of the actual role). To understand these differences, we can draw upon explanations offered in the organizational research literature and namely the assumption that beliefs are usually embedded in specific contexts (cf. Feldman, 1987; Smylie, 1995). In our case, the specific contexts refer to the individual backgrounds of the teachers and institutional settings (RU versus UAS, research support and research culture). The RU teachers had more research training and more research experience than the UAS teachers in our study. On the basis of this information alone, the RU teachers could be expected to have fewer difficulties incorporating research into their teaching than the UAS teachers, which was found to be the case in our study.

The historical backgrounds of the institutions and the fact that research universities have been engaged in research for a much longer period of time than

universities of applied sciences can also be expected to make it easier for teachers at the former to incorporate research into their teaching than teachers at the latter. As a result of academic drift and mission stretch, UAS have only recently become involved in research (Kyvik & Skodvin, 2003).

Perhaps closely related to these background differences, the two types of universities in the Netherlands differ with regard to educational aims, the amount of time allocated to research versus teaching, the research culture which has been developed, and the research support provided by the institutions. These differences can help us understand the more positive perceptions of the actual role of research in teaching for the RU teachers relative to the UAS teachers.

First, UAS used to be teaching-only institutions and therefore more profession/vocation-oriented than research universities; the educational programs were mostly aimed at training for professional practice (cf. Griffioen & de Jong, 2013). In contrast, research universities have been research-oriented all along and their educational programs may or may not directly relate to professional practice in particular.

Second, the RU teachers in our study reported more structural work time for research activities than the UAS teachers, as indicated in Table 3.2. Time constraints may thus make it difficult for UAS teachers to combine research and teaching.

Third, research universities have well-developed research support and thus a strong research culture, which is also indicated by our survey results. The RU teachers perceived their institutions to indeed have stronger research cultures than the UAS teachers. Our assumption that institutional support and the institutional research culture play a role in the extent to which university teachers have managed to integrate research into their actual teaching is particularly confirmed by the perceptions of the teachers at the changing UAS: Their perceptions of the research support and research cultures at their institutions significantly correlated with their perceptions of how well they have actually integrated research into their teaching practice.

In general, our findings indicate that both individual and institutional conditions — including educational background, research experience, time spent doing research, institutional research culture and institutional research support — are relevant for a teacher's efforts to integrate research into teaching. Stated differently, both individual and institutional conditions help explain the gap between what teachers believe about the ideal role of research in teaching and what they perceive about the actual role of research in their teaching.

