Teaching and Teacher Education 109 (2022) 103559

Contents lists available at ScienceDirect

Teaching and Teacher Education

journal homepage: www.elsevier.com/locate/tate

Research paper

Negotiating professional expertise: Hybrid educators' boundary work in the context of higher education-based teacher education

Maiken Risan

Oslo Metropolitan University, Norway

HIGHLIGHTS

- Hybrid educators are expected to "build bridges" in teacher education.
- Extensive observations and interviews conducted at three teacher education institutions in Norway.
- Analyses identify negotiations of professional expertise through the lens of boundary work.
- Perceptions of a "hierarchy" dictate whose knowledge matters the most.
- Findings demonstrate opportunities involved in embracing differences that hybrid positions bring to the fore.

ARTICLE INFO

Article history: Received 6 February 2021 Received in revised form 12 October 2021 Accepted 13 October 2021 Available online 16 October 2021

Keywords: Teacher education Boundary work Professional knowledge Hybrid educators

ABSTRACT

Researchers and policymakers advocate the need to establish stronger relations between schools and universities in teacher education, but we know little about micro-level practices that professionals engage in to forge connections between these domains. Analytically foregrounding hybrid educators in Norway, this article goes beyond metaphors of "building bridges" by providing nuanced accounts of how expertise is negotiated through boundary work in higher education. The analyses demonstrate how perceptions of a "hierarchy" dictate whose knowledge matters when and in what ways and show the importance of recognising expertise as differentiated and as mobilised or silenced through participation in specific professional practices.

© 2021 The Author. Published by Elsevier Ltd. This is an open access article under the CC BY licenses (http://creativecommons.org/licenses/by/4.0/).

1. Introduction

Several researchers have emphasised the need for teacher education programs to make better use of the knowledge and expertise that exist in schools, for instance, through new educator roles (e.g., Ellis & McNicholl, 2015; Zeichner et al., 2015). Working at epistemic boundaries between schools and higher education, *hybrid educators* provide an interesting empirical case to study the work of practitioners who are associated with expectations of "bridging" two knowledge domains in general and in teacher education in particular. Within educational research, the term *hybrid teacher educators* usually refers to university-based educators who supervise student teachers in the school context (e.g., Martin et al., 2011; Williams, 2013; Zeichner, 2010); in this study, however, the term is used to denote schoolteachers with co-employment as

Despite an increased focus on the positive outcomes of shared responsibility for student teachers' learning, researchers note that partnerships are often built on idealistic models that are challenging to realise, for instance, due to power imbalance and the challenge of creating actual equality between theoretical and practical components (Ellis & McNicholl, 2015; Lillejord & Børte, 2016; Zeichner et al., 2015). Furthermore, it is well documented that those working across professional boundaries face tensions and the risk of being excluded and marginalised (e.g., Edwards et al., 2010; Vähäsantanen et al., 2009; Waitoller & Kozleski, 2013), as they not only act as bridges between two domains but also simultaneously represent the very division between them (Akkerman & Bakker, 2011). It follows that work at epistemic boundaries in education can be assumed to be challenging. However, we know little about the actual practices professionals engage in to strengthen university-school relations, as micro-level analyses-particularly those combining observational data and

E-mail address: maiken.risan@oslomet.no.



0742-051X/© 2021 The Author. Published by Elsevier Ltd. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).





TEACHING ND TEACHER EDUCATION

educators in higher education-based teacher education.

conversational data—are largely missing within educational research (Little, 2012).

Norwegian teacher education is an interesting case to study as it has undergone a series of reforms over the last decades, for instance, by increasingly demanding a master's degree to teach. Despite stronger academisation, teacher education programmes aim at being both "research-based" and "profession-oriented" (Afdal, 2016), but student teachers have repeatedly criticised Norwegian teacher education programmes for being too fragmented (e.g., Lillejord & Børte, 2017; NOKUT, 2019). To address this challenge, policymakers have suggested an increased focus on university-school collaboration, for instance, by expanding the employment of educators who combine their workload between schools and campus (Norwegian Ministry of Education and Research, 2017). These educators are associated with an expectation of being "expert teachers" (Jelstad, 2018) who are brought into campus-based teacher education to "build bridges between teacher education and schools" (e.g., NTNU, 2019). However, research on schoolteachers working in both schools and higher education is lacking, and consequently, little is known about the work they do in pursuit of forging connections between two domains as educators in the context of higher education.

To unpack ideals of "bridging gaps", this article applies the theoretical construct of *boundary work* (e.g., Langley et al., 2019; Liljegren, 2012a) and directs attention towards how hybrid educators negotiate responsibilities and expertise in different contexts of campus-based teacher education. Drawing on extensive observations and interviews conducted at three teacher education institutions, the following research questions are pursued: *What characterises hybrid educators' boundary work in the context of higher education-based teacher education? How is their professional expertise as educators negotiated through that work?* First, I present the literature that contributes to an understanding of work at university—school boundaries before outlining the theoretical framework and methodological approach. Thereafter, findings are presented, followed by a discussion and conclusion.

1.1. Literature review: Working at epistemic boundaries in teacher education

A growing body of research sheds light on work across boundaries in teacher education as situated in *third* or *hybrid spaces* (e.g., Bullock, 2012; Cuenca et al., 2011; Daza et al., 2021; Martin et al., 2011; Williams, 2013; Zeichner, 2010). These studies are relevant for the present article as they often highlight how actors from different domains—such as student teachers, mentors, and educators—come together in settings where boundaries between schools and universities are intended to intersect and overlap in pursuit of learning and transformation. In these settings, the ideal is a democratic collaboration where dichotomies such as "practitioner knowledge" and "academic knowledge" are blurred (e.g., Zeichner, 2010, p. 92).

One set of these studies has examined the challenges associated with work across epistemic boundaries in teacher education by highlighting challenges involved in negotiating epistemic hierarchies and manoeuvring whose knowledge matters when and in what ways. In a study of collaborative activities at various teacher education programmes in the United States, Zeichner et al. (2015) highlight the difficulties of establishing democratic structures across institutional boundaries. Drawing on examples from collaboration among universities, schools, and communities, they argue that work in these spaces requires teacher education institutions to alter existing power relations by rethinking "who is an expert" (p. 132). The authors further point at the need for teacher education to establish less hierarchical collaboration structures with schools that better facilitate for practitioners' inclusion and encourage educators to work across institutional boundaries. Ellis and McNicholl (2015) also found hierarchical structures to be strongly present in their study on teacher educators' work in England and Scotland, where they found partnership work often divided up on the basis of historically evolved cultural norms between schoolteachers and higher education. For instance, as higher education partners were tasked with "abstracting" knowledge to give it a wider meaning. Thus, the authors argue that higher education partners became responsible for adding value to what schools did, while little acknowledgement was given to the "strong (or even stronger) reverse contribution" (Ellis & McNicholl, 2015, p. 136), suggesting that academics' knowledge tends to be privileged in collaborative contexts.

In line with these findings, Wang and Wong (2017) found relationships between actors working at boundaries between schools and universities in China to be understood in terms of "expert" and "practitioner". They further identified how the participants made few references to the kind of reciprocity that they had predicted to find in teachers' and academics' accounts of partnership work: While the partnership was clearly valued, the study demonstrated a persisting perception of asymmetry, especially prominent in the school-based staff's responses (Wang & Wong, 2017). Combined, this line of research pinpoints the tension that can arise at the intersection of epistemic boundaries between schools and universities. By foregrounding what kind of knowledge emerges as privileged in collaborative settings between practitioners and academics, this line of research identifies persisting perceptions of traditional knowledge hierarchies and divisions.

Another set of studies analytically foreground challenges related to shifting roles and identities of educators who work at epistemic boundaries (e.g., Martin et al., 2011; Poyas & Smith, 2007; Waitoller & Kozleski, 2013; Williams, 2013, 2014). Exploring her own shifting educator identity when mentoring student teachers in schools, Williams (2013) argues that work at educational boundaries is made difficult due to tensions and confusion arising from identity issues and conflicting obligations among teachers, students, and educators. Similarly, Martin et al. (2011) explore the multitude of roles they take on as university-based hybrid educators in pursuit of facilitating collaborative relationships in partnership settings. In this study, the authors point to the task of ensuring an equal power balance between actors, such as student teachers, principals, and hybrid teacher educators, as one of the most challenging aspects of their "boundary bridging efforts" (p. 308). Drawing on interviews and questionnaires, Poyas and Smith (2007) further highlight the complexity of overlapping roles and identities of educators working at boundaries in school-university partnerships, arguing that educators need more explicit definitions of roles and tasks when working in-between expectations from the academic context and expectations from schools. These studies draw attention to the complex register of identities and roles available for those working at epistemic boundaries in education and further pinpoint the importance of explicit expectations and definitions as crucial contextual factors that may mediate that work.

This brief review sheds light on aspects that can be expected to shape hybrid educators' work at epistemic boundaries between schools and universities and indicates what these "boundaries" may consist of: hierarchical power relations, unclear roles and responsibilities, and conflicting perceptions of expertise and whose knowledge matters in different educational contexts. In these studies, boundaries are often viewed as tensions or challenges that should be bridged or blurred to achieve learning and development. The current study takes a different approach by empirically examining how boundaries can serve as complex resources that both hinder *and* facilitate the enactment of professional expertise

M. Risan

in campus-based teacher education. Furthermore, several of the studies in this review investigate work at epistemic boundaries in education based on interviews or self-studies; there are lacking micro-level analyses based on observations of interaction and practices of educators in general and those of schoolteachers who work in the higher education context in particular. By analytically foregrounding the micro-level practices of a group of hybrid educators, this article goes beyond metaphors of "building bridges" or "bridging gaps" and provides a nuanced account of work at boundaries. The study illuminates how boundaries may both enable and prevent schoolteachers' enactment of expertise when working as educators in the higher education context.

1.2. Analytical perspectives

The school context and the higher education context are associated with different *knowledge domains* that hybrid educators are expected to build bridges between; whereas work in higher education historically has been oriented towards the production and dissemination of research-based knowledge, work in schools combines different forms of knowledge towards the overall purpose of educating children and youth. Both domains are shaped by their respective cultural, historical, and organisational trajectories. Consequently, hybrid educators cannot simply enter the higher education context and "create bridges" between the two domains. Instead, they have to establish their position within a new organisational and institutional context and negotiate their contribution in relation to existing expertise in higher education.

Whereas previous research has frequently described work across institutional boundaries through theories of socialisation processes (e.g., Lave & Wenger, 1991), through the construct of "third" or "hybrid spaces" (e.g., Klein et al., 2012; Martin et al., 2011; Zeichner, 2010), or through the notion of "boundary crossing" (e.g., Akkerman & Bakker, 2011), this article argues that we need to highlight and conceptualise the complex and creative *work* involved as professionals negotiate expertise, jurisdiction, and status at institutional boundaries between schools and universities: The construct of *boundary work* (e.g., Gieryn, 1983; Liljegren, 2012a) offers a fruitful framework to unpack and understand processes and factors that shape this work (Langley et al., 2019; Mørk et al., 2012; Zietsma & Lawrence, 2010).

The notion of boundary work was initially applied by Gieryn (1983, p. 792) to investigate how scientists distinguished their authority from that of "non-scientists". The concept has later been used within studies on different professional groups to analyse how professionals build boundaries to demarcate their own domain of expertise from that of other professions (e.g., Abbott, 1988, 2005). In these contexts, boundary work has primarily been applied to identify the *creation* of professional boundaries, and thus, the concept is often associated with power relations and viewed as an activity of claim-making concerned with the division of labour and establishment of expertise that distinguishes professionals from other groups (Fournier, 2000; Liljegren, 2012b).

Boundary work does not, however, merely provide a framework to conceptualise the demarcation of boundaries. It further enables an investigation of the work involved in negotiating connections and alliances across these boundaries, in other words, bridging or blurring professional boundaries. Langley et al. (2019) describe boundary work as a framework that clarifies differences *and* enables connections, consisting of the *creation*, *maintenance*, *blurring*, and *transformation* of boundaries as the target of action (p. 706). Similarly, Liu (2015) emphasises that boundary work has complex varieties of forms and further proposes a distinction among *boundary making*, *boundary blurring*, and *boundary maintenance* as key tools for analysis. These distinctions help unpack an understanding of what boundary work consists of by clarifying the complex process involved in establishing divisions through creating and maintaining boundaries on the one hand and negotiating connections and relations through bridging, or blurring, boundaries on the other hand.

Directing attention towards both how professionals demarcate boundaries in relation to other groups and how boundaries are blurred as connections are sought, it follows that boundary work cannot be studied through a focus on individuals in isolation. Instead, work is understood as an activity that is embedded in social contexts and thus available to interpretation through participation in these (e.g., Nicolini, 2012; Schatzki et al., 2001). Therefore, this study focuses not only on hybrid educators' own perceptions of their educator responsibilities but also on extensive observations of collaborative settings between hybrid educators and campus-based staff, which are analysed to understand how boundary work is conducted in interactions with others through different institutional practices. Furthermore, interviews with teacher education leaders are included as the leadership perspective provides a better understanding of hybrid educators' inclusion-or lack of such-into organisational routines and practices in the higher education context

In summary, the concept of boundary work offers a way to unpack ideals of "boundary bridging" and examine the nuances and complexities of work at epistemic boundaries. In this article, it is done through empirically investigating the boundary work that hybrid educators conduct in the higher education context and by capturing how their expertise as educators is negotiated through that work. More specifically, observations and interviews are analysed to trace how differences and divisions on the one hand or connections and linkages on the other hand contribute to enabling or restricting hybrid educators' enactment of expertise and perceptions of what aspects of knowledge are valued the most in collaborative settings between higher education actors and hybrid educators.

2. Data and methods

2.1. Empirical context and informants

The data used in this article are derived from fieldwork across two academic semesters and comprise observations of three hybrid educators' campus-based work and in-depth interviews with hybrid educators and their immediate leaders on campus.

In Norway, teacher education programmes at all levels are primarily delivered by universities or university colleges with at least 100 days of school-based practicum. The informants in this study work at teacher education programmes for Grades 1-7, 5-10, or 8-13; from 2017, these are all five-year MA programmes. In addition, some universities and university colleges provide a one-year practical-pedagogical education programme (PPU)-from 2019, this programme is for students who have already obtained an MA. To ensure a balance between research-based teacher education and professional relevance, several teacher education institutions have established various hybrid educator roles-often referred to as delte stillinger (divided positions) or kombinasjonsstillinger (combined positions)—for instance, as part of university-school partnerships. However, the utilisation of hybrid educator positions varies from institution to institution; for instance, hybrid educators may be schoolteachers or school leaders who have co-employment in higher education, or they may be campus-based educators who are tasked with collaborating with schools; they may participate in university-school research projects, or they may be tasked with teaching seminars on topics concerning the teaching profession. Thus, it was of interest to recruit hybrid educators from more than

Table 1

one institution. The selection criteria for choosing informants for this study were that they worked at different institutions, that they worked both in schools and at campus-based teacher education, and—as this study is concerned with hybrid educators' work in the context of higher education—it was of interest to recruit informants who had a workload of at least 20% related to teacher education.

While recruiting informants, leaders at eight teacher education institutions across Norway were contacted, and four of these confirmed that they had employed hybrid educators for the 2018–2019 academic school year. These institutions provided contact information, and three of the educators agreed that they were willing and interested in participating in the study. Their closest leaders at the teacher education institution also confirmed to be interviewed; these leaders are responsible for recruiting hybrid educators at their institutions and were thus considered an appropriate informant group to elicit information about intentions and expectations associated with hybrid educator's work in the higher education context and how the institution facilitated their inclusion into the higher education context.

The three hybrid educators work as schoolteachers at lower or upper secondary schools in different parts of Norway and as educators at three different universities. As this study is concerned with work in the context of higher education, hybrid educators' school-based work is not considered. The informants were primarily recruited as educators due to their teaching experience, their familiarity with the teacher education programme through work as school-based mentors, and/or their subject-specific competence. They all have teaching degrees, yet unlike a growing number of educators in the Norwegian teacher education context, they have not obtained a PhD and do not conduct research as part of their educator tasks. The three educators are employed by the university primarily to teach; both Linn and Dina teach subject didactics, and Marie teaches seminars that focus on various aspects of the teaching profession (see Table 1 for an overview). Whereas Marie often conducts teaching and planning together with campusbased educators—mostly on her own initiative, Linn and Dina only occasionally collaborate with campus-based colleagues.

The hybrid educators were observed in the campus-based activities they participated in throughout the academic semesters of 2018–2019, and the observation material makes up approximately 100 h of observations. The semi-structured interviews with the hybrid educators and their leaders lasted 1 h each; they were audiotaped and subsequently transcribed. The interviews with the hybrid educators intended to elicit perceptions of their work as educators, asking, for instance, what they considered when planning and conducting campus-based teaching and their perceptions of collaborating with campus-based colleagues. The interviews with the leaders focused on eliciting intentions and expectations that they associated with the hybrid position. One of the benefits of combining observational data with interviews when exploring boundary work is that actual practices are observed as they happen, as micro-level studies of work processes and relationships are crucial for grasping institutional practices (Little, 2012), and interview data provide a deeper insight into interpretations for decisions and actions (Riessman, 2008).

2.2. Analytical approach

The analysis was guided by the research questions and performed in several steps (see Table 2 for an overview of data sets). First, I focused on identifying episodes in the observation material where hybrid educators interacted with campus-based actors, for instance, when co-teaching or in staff seminars. Next, I focused on extracting parts from the interviews where hybrid educators described their educator activities and perceptions of their responsibilities and contribution in relation to campus-based colleagues. Fragment chunks from all interviews were subsequently extracted and grouped into broad categories; for instance, text segments when leaders or hybrid educators talked about expectations associated with the hybrid educator position were categorised as "expectations", and segments when they talked about collaboration with campus-based staff were categorised as "relations".

Next, I conducted a more fine-grained analysis of the selected fragment chunks from all data sets, focusing specifically on identifying similarities and differences within and between the informants. At this stage of the analysis, several prominent patterns stood out in the observation material, and the interview material was read and re-read with the intention of identifying hybrid educators' explanations and perceptions of episodes in the observation material. For instance, the hybrid educators often took on a more passive role when teaching together with campus-based educators than when teaching alone, and this was explained in

Name of hybrid educators (pseudonyms)	Marie	Linn	Dina
Workload	20% as a teacher educator	50% as a teacher educator	30% as a teacher educator
	80% as a secondary schoolteacher	50% as an upper secondary schoolteacher	70% as an upper secondary schoolteacher
Main campus-based task	Teaching seminars focusing on various aspects of the teaching profession, mostly together with campus-based educators	Teaching social science didactics	Teaching religion and ethics didactics
Experience as a hybrid educator	First year	Fifth year	Third year
Other teacher educator tasks	Mentoring students in their practicum	Participating in research group meetings	Mentoring students in their practicum
		Evaluating student papers	Participating in research group meetings
		Visiting students in their practicum	Evaluating student papers
Name of immediate leaders at the teacher education institution (pseudonyms)	Anna	Peter	Sara
Name of campus-based colleagues included the observational material	in Karen	David, Hans	Amanda, Freya, Alfreo

M. Risan

Table 2

Data set	Observations of hybrid educators	Interviews with hybrid educators	Interviews with leaders
Focus	Interaction with campus-based actors	Perceived mandate	Expectations associated with the hybrid position
on	Division of tasks, knowledge mobilised	What they emphasise when planning and conducting campus-based tasks Talk about their work as educators, challenges, and advantages with their work	Talk about hybrid educators' campus tasks, collaboration with campus-based actors
	Emphasising similarities and connections or differences and divisions	Talk about collaborative settings with campus-based actors Experienced inclusion in organisational routines on campus	Talk about organisational routines on campus and hybrid educators' position in these

the interviews as being a consequence of feeling "humble" or like "outsiders" in collaborative settings. Furthermore, several contradictions and contrasts stood out between the informant groups, especially concerning perceptions of hybrid educators' inclusion into organisational routines.

The next step of the analysis involved identifying boundary work in the selected data material by drawing on categories suggested by Langley et al. (2019) and Liu (2015): boundary maintenance and boundary bridging. To identify these processes, extracts from the interviews or observation material that foregrounded divisions and differences between hybrid educators and campusbased actors were categorised as boundary maintenance, and extracts when connections and similarities were emphasised were categorised as boundary bridging. For instance, segments when a hybrid educator described the higher education context as "someone else's territory" were categorised as boundary maintenance, and segments when a hybrid educator and a campus-based educator were co-teaching and explicitly pointed out the relevance of each other's' epistemic contributions were categorised as boundary bridging. However, it became clear that the category of boundary maintenance did not sufficiently pinpoint the work of demarcating boundaries that was prominent in the material and consequently, and this category was therefore divided into two recurring and prominent themes (Creswell & Poth, 2017): boundary maintenance and rejecting boundaries. The category of rejecting boundaries pinpoints the connection between the leaders' tendency to downplay or reject boundaries on the one hand and the complex boundary work hybrid educators conduct to demarcate their responsibilities as educators on the other hand.

To ensure validity and consistency in the study, preliminary findings were presented to fellow researchers, who provided feedback and commentary (Cohen et al., 2018; Kvale & Brinkmann, 2009). The analysis is based on observations and interviews with a limited number of informants and thus not generalisable to all hybrid educators. However, as the analyses reveal a range of common trends, it is possible to point to characteristics that have conceptual and empirical implications beyond these hybrid educators and their specific workplaces.

3. Results

In the following, hybrid educators' boundary work is presented in three categories: (1) boundary bridging, (2) boundary maintenance, and (3) rejecting boundaries. The three categories demonstrate how boundaries both facilitate and hinder hybrid educators' enactment of professional expertise. In the extracts below, hybrid educators interact with other campus-based actors (see Table 1); the campus-based educators in these extracts are primarily associate professors or professors who conduct research activities and campus-based teaching. All names are pseudonyms.

3.1. Boundary bridging: establishing differentiated expertise and seeking alliances

The boundary work in this category is characterised by efforts to seek connections across established positions of differentiated expertise and responsibilities. This boundary work is especially prominent in observations of collaborative settings between hybrid educators and campus-based educators, as the following observation extract demonstrates. Here, Marie teaches a group of student teachers together with a campus-based educator, Karen. The two have co-planned the lesson, but they have never taught together before. Discussing the topic of adapted education, Marie and Karen clearly position themselves and each other with differentiated expertise:

Marie says that it is important to know pupils' home conditions and gives an example from her own class, a boy who strongly dislikes going to school. Marie explains how she let the pupil take pictures instead of writing about himself, and he was excellent at it. "And that, that's adapted education." Karen says that is a good example. Karen: "What does research on adapted education say? Well, that variation is important." Karen says that research has found student teachers to lack a vocabulary to talk about adapted education. She says they need to be able to talk about adapted education. Marie says that is important. Marie: "For example, sometimes you have the guiet class and other times you have the class where no one can sit still; is it the teacher or the pupil that determines that?" Marie says they must be able to adapt what they do in the classroom to a multitude of pupils and shows an example of adapted teaching material from her social science class on the whiteboard. Karen adds that research shows that creativity and drawing can be important tools.

Drawing on cases and examples from her own teaching practice, Marie positions herself as an "expert teacher" who solely provides knowledge from the school context. Karen, on the other hand, draws on research, taking on a position as the "academic". However, this extract does not only demonstrate how the two actors establish positions of differentiated expertise; it further illustrates how they build on each other's contributions and explicitly establish relations between their expertise. For instance, Marie mobilises examples from practice to confirm and exemplify Karen's research claims, and the other way around. Thus, this example identifies bridging as a double process of boundary work, entailing both the demarcation of differentiated expertise and bridging efforts that are made from these clearly defined positions.

In the interview, Marie elaborates on what she emphasises when teaching on campus and points to the ability to provide specific examples from school as her perceived mandate: Marie: Because the goal is practice, that I have to give specific examples, all the time, that is where it becomes concrete. Because theory they get here this year and next year, and I have to get it down to the specifics [...] That is my strength. That is why I am employed here, I think.

In this account, the ability to provide specific examples is pointed to as something that gives Marie confidence and authority in the higher education context. As she explicitly differentiates her strengths from those of campus-based educators—tasked with teaching "theory"—Marie demarcates her expertise and simultaneously foregrounds her contribution as valuable in relation to that of campus-based educators.

This notion can also be identified in Linn's account, where she emphasises that she has something valuable to offer student teachers and positions herself as an "ally":

Linn: Of course, campus-based educators are familiar with practice in schools, they have been out there collecting empirical data for their research. But I still think it's something else standing out there and teaching and tackling the challenges that arise in the classroom, seeing why a lesson succeeds, what makes pupils eager, when do they learn something. That's something I think student teachers like to get insight into. That they can compare themselves and what they experience in their practicum—because they can have awful days and good days—and getting to know that's normal, I think they find a ... yes, an ally in me. Campus-based educators are more, perhaps, idealistic. And that is good, I think, with both.

Linn emphasises that she has something different to offer student teachers than other educators, and this could be interpreted as reinforcing divisions between the two educator groups. However, she also points to the benefits of providing student teachers with both versions of expertise and thus foregrounds the establishment of clearly differentiated strengths as a prerequisite for working side by side.

In sum, this category identifies boundary bridging as a double process; first, it involves a process of demarcating boundaries of differentiated expertise and responsibilities, and second, it involves a process of seeking alliances and connections from these established positions. The examples further demonstrate demarcation processes that enable hybrid educators' enactment of expertise, as they express confidence in having different, yet valuable, expertise that complements that of other educators.

3.2. Boundary maintenance: becoming passive and humble outsiders

Even though establishing differentiated expertise could be seen to provide hybrid educators with confidence in having something "different" to contribute, an opposite tendency is also prominent across the observation material. The hybrid educators were often found to take on a more passive role when teaching together with campus-based educators than when teaching alone.

When asked about her perceptions of teaching together with other educators in the interview, Dina explains her passive role as a consequence of a perceived hierarchy, where the campus-based educator is "above" her:

Dina: I take on a passive role when I teach together with campus-based educators, I guess I do. Consciously or unconsciously. Because, like the week you observed, I could have taken control and led everything, but I didn't know the group of students and he [the campus-based educator] ... I don't know. It has something to do with the hierarchy, where it is more his territory than mine, for instance.

Even though she expresses confidence in having the expertise to lead campus-based activities alone, Dina's account suggests that the knowledge she contributes as an educator is somewhat restricted by perceptions of a power imbalance between herself and campus-based educators that come to the fore in collaborative settings. Thus, this pinpoints boundary work that contributes to maintaining notions of barriers where the higher education context is perceived as the "territory" of academics. This is a notion that is prominent in interviews with all three hybrid educators, for instance, as Marie explains how she feels "humble" in relation to campus-based educators' expertise:

Marie: Of course, when you work with someone here, you get humble, in regard to their competence [...] So, I've just let them—in a way—just decide, and I just add. Of the simple reason that they have done this before, and I'm not here to wreck something that works, I'm just supposed to be a contribution.

Marie's account suggests that her engagement in collaborative settings with campus-based educators is shaped by perceptions of their expertise and her own responsibility as limited to merely being a "contribution" that adds to established practices when—or if—necessary.

The following extract provides an example of how Dina's educator work is shaped by perceptions of what kind of expertise matters the most on campus. Here, Dina and two campus-based educators, Freya and Amanda, are preparing a group activity that they have been asked to present at a staff seminar for everyone working at the teacher education institution later that week.

Dina works with Amanda and Freya at the office that the two campus-based educators share: Amanda says that they should put staff with different subject areas into groups. Dina agrees and says the task is relevant for all subjects. Freya asks who wants to introduce the task to the other educators at the seminar. Amanda says no, she has too much to do. Dina says that she would like to do it. She says that she has never been to a teacher educator seminar before, that she is such an outsider and wants to challenge herself by introducing the task [...] After the staff seminar, I [the interviewer] ask Dina how she felt about introducing the activity to the other educators. She says that the seminar was a bit awkward because she has such a weird position. "Here, you know, you have experts on that subject area, and then I'm supposed to supervise that activity. That's just weird." She explains that she was the only hybrid educator at that seminar. and she feels like "such an outsider".

Despite explicitly pointing out that she wants to challenge herself and contribute to the staff seminar, Dina positions herself as an "outsider" who has little to contribute in that context. Thus, perceptions of campus-based educators' expertise can be seen as an important factor that shapes hybrid educators' position by reinforcing a notion of a hierarchy between the two domains; Dina perceives her own expertise to have little value among campusbased staff. This extract further suggests that divisions become especially prominent when hybrid educators enter institutional practices that are new to them; for instance, as Dina emphasises, this is the first time she has participated in such a seminar.

In the interview, Dina elaborates on aspects that make her feel

like an outsider in collaborative settings with campus-based actors:

Dina: Now, I can see that some of the campus-based educators are very theoretical, they speak on a theoretical level, and I say the same thing in a more everyday language. And in that setting it becomes weird, because I'm not familiar with the academic language. And in the classroom it's not, and I think that's always been my strength—both here and when teaching at the school, that I can talk about things in a way that makes students and pupils say "Oh yes!"—that I put it down to a level where they get it, but that I still relate it to the more overreaching level. But it's strange, that feeling—I'm used to be the one that understands things, and suddenly I'm sitting there with three campus-based educators, feeling like the, eh, like the one who has no idea what they're talking about.

Dina describes feeling somewhat ignorant in settings where the "theoretical language" that belongs to higher education is applied. However, she simultaneously expresses confidence in having a valuable ability to translate the academic language into an "everyday-language" that is more appropriate in relation to students and pupils. Thus, this extract pinpoints language use as an important factor that can contribute to maintaining a notion of divisions between schools and higher education: Work at epistemic boundaries involves a complex translation process of adapting language and articulating knowledge in a context where other ways of expressing knowledge are valued the most.

In sum, the examples in this category demonstrate how hybrid educators tend to take on a more passive role when working together with campus-based actors due to notions of hierarchies and authority in the higher education context. These notions can be viewed as boundary maintaining, as the emphasis put on differences and divisions makes hybrid educators perceive themselves as "outsiders" in established practices where they feel that they have little to contribute to. Consequently, the boundary work highlighted in this category may contribute to restricting their enactment of expertise.

3.3. Rejecting boundaries: being self-reliant equals?

This category highlights how hybrid educators' boundary work is shaped by how their leaders facilitate their inclusion into higher education practices. The extracts pinpoint strong contrasts between leaders' and hybrid educators' perceptions of inclusion and suggest that leaders' tendency to downplay boundaries may create challenges for hybrid educators' boundary work.

The use of metaphors such as "bridging the gap" and "building bridges" is prominent across the three leader interviews when they discuss hybrid educators' mandate in higher education. However, when elaborating on hybrid educators' responsibilities on campus more specifically, their accounts are characterised by downplaying and rejecting boundaries. The three leaders tend to emphasise notions of equality and reciprocity in their accounts of hybrid educators' work, positioning them as valuable members of staff:

Sara: The people we recruit, they become part of the campusbased staff, and we work with that cultural understanding of reciprocity. So, many hybrids have explicitly expressed that they feel very included by their campus-based colleagues, and they are very sought after to collaborate with [...] Campus-based educators nearly fight to work with them.

Characterising hybrid educators as included in institutional practices and sought-after colleagues, Sara positions hybrid educators as having an established professional authority in the higher education context. In line with this, she further points to a generation change that has altered traditional hierarchical structures in teacher education, thus expressing a notion of boundaries as blurred or non-existing:

Sara: Because campus-based educators, we have been through a generation change, and they work together in teams and plan lessons together. And in my opinion, I hear that those that have hybrid educators in their teams, they see that as very valuable, because they need to learn about this and that, and then the hybrid from the practice site comes in and pulls it down, right? Or, they contribute with the examples and cases and grounds everything in the school-classroom, and that is very very valuable.

Describing hybrid educators' competence as differentiated from that of campus-based educators, the leader emphasises a perception of successful collaboration where different expertise is recognised and effortlessly used to complement each other.

Further demonstrating how the leaders view hybrid educators as successfully included in campus-based practices, Peter explains that hybrid educators make valuable contributions to research groups:

Peter: And what we have experienced, is that [hybrid educators] can be important contributions to research groups [...] because they check that what we do is relevant.

This perception stands in strong contrast to the hybrid educators' responsibilities and contributions in a research group setting. In this extract, Linn attends a research group meeting with campusbased staff: her leader Peter and two associate professors, David and Hans.

David says that Linn could be part of a new research project. Linn says that would have been interesting, but it is not possible—she has no available time. David says they can wait and see if she may be able to join later. After the meeting, Linn explains [to the interviewer] that she spent most of the meeting working with other things on her laptop. She says it's interesting to listen to associate professors talk about their conferences and their articles, but her work at campus does not include research activity; if she agreed to participate in a research project, she would have to use her own spare time to do that work.

As this extract illustrates, Linn is included in the research group but does not have the resources to contribute to research projects. This highlights how structural and organisational factors contribute to shaping hybrid educators' boundary work. On the one hand, Linn is included, her colleagues express expectations that she will participate in research projects, and the leader explicitly assigned her a role in making research projects more "relevant". On the other hand, her formal contract does not allow for time to engage in research, and as a result, her participation in the research group emerges as symbolic. Rather, she is unable to enact her expertise in the context of a specific research project and resorts to doing other work while in the meeting. Thus, this extract demonstrates how a setting that somewhat rejects existing boundaries between the two domains leads to a reinforcement of boundaries, as the only expertise that can be used in the context is that of campus-based staff.

Despite emphasising reciprocity between hybrid educators and campus-based staff, Marie's closest leader, Anna, simultaneously emphasises that hybrid educators' inclusion into higher education practices depends on their own initiative:

Anna: I think [hybrid educators] have to be persistent and get in touch with others and offer their services, so to speak, instead of just sitting there waiting for someone to get in touch, because that won't happen.

Expressing an expectation of hybrid educators being able to establish connections to campus-based staff themselves, the leader dismisses the notion of differences and divisions that may hinder hybrid educators from initiating such connections. However, it is prominent across hybrid educators' accounts that the task of getting access to organisational routines and practices is challenging.

Marie: It's a lot of walking around in the hallways, saying "Hello, who are you?" ... to really understand how things are connected. And many of the kind, competent campus-based staff understand the confusion, and they tell me, "I do this and that and you could pop in there and you could pop in here." And then we have established contact.

Marie points to lacking structures in higher education, saying that she has to establish contact with campus-based staff herself by walking around; thus, attempts at bridging boundaries become her responsibility alone.

Similarly, Dina expresses a wish for clearer expectations, hinting that even though leaders may expect hybrid educators to easily integrate into structures of higher education, their inclusion needs facilitating:

Dina: Well, the first thing the teacher education institution could do was ask me to be here one day each week, for instance, give me an office space. Explicit expectations. Now, getting involved has been up to me. And more explicit ... a ... well, maybe, sit down with me and tell me about the structure, the workplace, "this is how things are done". An orientation-meeting.

Here, Dina calls for clearly defined expectations and expresses a wish to be explicitly included in the higher education context, for instance, with an office space.

In sum, this category identifies hybrid educators' boundary work as shaped by contradictions between their leaders' tendency to reject and downplay boundaries on the one hand and hybrid educators' experience of lacking inclusion on the other hand. Even though leaders foreground a view of hybrid educators as equals that do not require boundary-bridging efforts, the examples demonstrate how these notions stand in strong contrast with the complex boundary work hybrid educators conduct to demarcate their responsibilities and expertise as educators and establish connections with campus-based staff.

4. Discussion

Illuminating the complex *boundary work* involved in negotiating professional expertise and responsibilities, this article contributes to unpacking expectations of "bridging gaps" associated with hybrid educators that work at epistemic boundaries of teacher education. More specifically, the findings demonstrate how boundaries are bridged, maintained, and rejected as hybrid educators negotiate their contribution in relation to existing expertise in the higher education context.

The findings align with previous research when it comes to

identifying how actors from schools and universities conduct boundary maintenance when they take on differentiated positions as "practitioners" and "academics" in collaborative settings (Wang & Wong, 2017), where campus-based actors are tasked with "abstracting" knowledge with theoretical perspectives to give it wider meaning (Ellis & McNicholl, 2015). The analyses further identify perceptions of hierarchies and power imbalances in the higher education context as influential factors of boundary maintenance that may lead hybrid educators to become passive "outsiders". Even though these findings somewhat confirm former research (e.g., Ellis & McNicholl, 2015; Zeichner et al., 2015), the current study provides specific empirical examples of how such dynamics materialise in micro-level practices. Specifically, the analyses reveal that perceptions of hierarchies and power are most prominent when hybrid educators are positioned in established practices on campus where their knowledge contribution seems to be redundant. For instance, Dina feels that she has nothing to contribute with among other "experts" at the staff seminar, or Marie's perception of merely being a "contribution" that adds to established practices when-or if-necessary. Thus, the analyses show the importance of recognising expertise as situated and as something that is mobilised or silenced through participation in specific institutional practices. This, in turn, implies that teacher education institutions should better facilitate hybrid educators' integration into higher education practices that are unfamiliar to them and acknowledge the importance of positioning hybrid educators in practices where their expertise can be utilised.

Interestingly, the findings also identify a contrasting tendency: Making use of and maintaining boundaries by emphasising what differentiates them from other educators were also seen to provide hybrid educators with a sense of confidence that in turn facilitated boundary bridging efforts. For instance, when Linn highlights that her expertise as a practitioner is very valuable for student teachers and complements the more "idealistic" contributions of other educators, or when connections are made explicitly relevant as Marie and the campus-based educator co-teach and build on each other's contributions from differentiated positions of "academic" and "expert teacher". The importance of establishing differentiated expertise is further materialised in the strong contrast between teacher education leaders' tendency to reject and downplay boundaries and differences on the one hand and the complex work hybrid educators conduct to demarcate responsibilities as educators and establish connections with campus-based staff on the other hand. This tendency is, for instance, demonstrated by Linn's participation in research-group meetings that becomes merely symbolic due to lacking organisational and structural aspects that would enable her participation.

Thus, the findings pinpoint an interesting contradiction: Even though researchers, policymakers, and teacher education leaders tend to advocate the removal of dichotomies between the two domains as an ideal for collaborative settings between schools and higher education, the analyses reveal that perceptions of dichotomies and binaries are not only very much present among the participants but also seem to provide hybrid educators with a sense of confidence in offering "different" expertise. It is therefore relevant to ask if the rejection of binaries such as "theory and practice" (e.g., Zeichner, 2010) should be an assumed aim of university-school collaboration in general and the employment of hybrid positions in particular. Rather, the findings provide nuanced demonstrations of opportunities involved in including hybrid educators in practices that emphasise and make use of the unique strengths and expertise that these positions bring to the fore. For instance, the findings demonstrate the potential of establishing coteaching sessions between hybrid educators and campus-based educators where differentiated responsibilities are explicitly

articulated and made use of. This may in turn help prospective teachers recognise and capitalise on the different strengths that exist in universities and schools (Jones et al., 2016). This implies that teacher education leaders need to clarify their intentions with employing hybrid educators in the higher education context. Furthermore, they may make better use of existing binaries by directing attention towards how differences can be brought into interaction in ways that promote what Akkerman and Bakker (2011) refer to as "coexistence at boundaries" (p. 143).

By highlighting the *work* conducted at epistemic boundaries of teacher education through analyses of micro-level practices, this study provides nuanced accounts of how boundaries are demarcated or bridged in ways that both enable and prevent hybrid educators' enactment of expertise in higher education contexts. As a growing body of research directs attention towards university—school collaboration, partnerships, and work in "hybrid" or "third" spaces, this study demonstrates the relevance of applying *boundary work*. This construct helps conceptualise and illuminate complex processes that provide affordances and constraints for those expected to forge connections at organisational and institutional intersections in teacher education.

5. Conclusions

Targeting schoolteachers with co-employment in higher education-based teacher education, this article illuminates aspects not yet identified in educational research by pinpointing how school—university boundaries are not "bridged" or "blurred" with well-meaning intentions of equality. The findings highlight opportunities involved in embracing and making use of the differences and tensions that hybrid educator positions bring to the fore. As it is likely that the employment of educators who work across institutional boundaries will be further promoted in pursuit of balancing "research based" and "professional relevance" in the context of teacher education, it is important to gain a better understanding of the opportunities and limitations involved in employing educators that work at these epistemic intersections.

This study is not without limitations. The empirical material was generated with a limited number of informants in one country. Thus, the empirical and conceptual implications should be developed through further research. Furthermore—yet beyond the scope of this study—other contextual features and the inclusion of additional informant groups, such as campus-based educators or student teachers, would have provided valuable insights into hybrid positions in the higher education context.

References

- Abbott, A. (1988). The system of professions: An essay on the division of expert labor. University of Chicago Press. https://doi.org/10.7208/chicago/ 9780226189666.001.0001
- Abbott, A. (2005). Linked ecologies: States and universities as environments for professions. *Sociological Theory*, 23(3), 245–274. https://doi.org/10.1111/j.0735-2751.2005.00253.x
- Afdal, H. (2016). "Research-based" and "profession oriented" as prominent knowledge discourses in curriculum restructuring of professional programs. *Higher Education*, 74(3), 401–418. https://doi.org/10.1007/s10734-016-9998-7
- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. Review of Educational Research, 81(2), 132–169. https://doi.org/10.3102/ 0034654311404435
- Bullock, S. M. (2012). Creating a space for the development of professional knowledge: A self-study of supervising teacher candidates during practicum placements. *Studying Teacher Education*, 8, 143–156. https://doi.org/10.1080/ 17425964.2012.692985
- Cohen, L., Manion, L., & Morrison, K. (2018). Research methods in education. Routledge Falmer.
- Creswell, J. W., & Poth, C. N. (2017). *Qualitative inquiry and research design: Choosing among five approaches*. SAGE Publications.
- Cuenca, A., Schmeichel, M., Butler, B., Dinkelman, T., & Nichols, J. (2011). Creating a "third space" in student teaching: Implications for the university supervisor's

status as outsider. Teaching and Teacher Education, 27, 1068-1077. https://doi.org/10.1016/j.tate.2011.05.003

- Daza, V., Gudmundsdottir, G. B., & Lund, A. (2021). Partnerships as third spaces for professional practice in initial teacher education: A scoping review. *Teaching* and *Teacher Education*, 102, 103338. https://doi.org/10.1016/j.tate.2021.103338
- Edwards, A., Lunt, I., & Stamou, E. (2010). Inter-professional work and expertise: New roles at the boundaries of schools. *British Educational Research Journal*, 36(1), 27–45. https://doi.org/10.1080/01411920902834134
- Ellis, V., & McNicholl, J. (2015). Transforming teacher education: Reconfiguring the academic work (Bloomsbury).
- Fournier, V. (2000). Boundary work and the (un)making of the professions. In N. Malin (Ed.), *Professionalism, boundaries and the workplace* (pp. 67–86). Routledge.
- Gieryn, T. F. (1983). Boundary-work and the demarcation of science from nonscience: Strains and interests in professional ideologies of scientists. *American* Sociological Review, 48(6), 781–795. https://doi.org/10.2307/2095325
- Jelstad, J. (2018). Her blir superlærerne fra lokalskolene satt til å undervise studentene [Here, expert teachers from local schools teach student teachers]. Utdanningsnytt. https://www.utdanningsnytt.no/her-blir-superlaererne-fra-lokalskolene-satttil-a-undervise-studentene/149238.
- Jones, M., Hobbs, L., Kenny, L., Campbell, C., Chittleborough, G., Gilbert, A., Herbert, S., & Redman, C. (2016). Successful university-school partnerships: An interpretive framework to inform partnership practice. *Teaching and Teacher Education*, 60, 108–120. https://doi.org/10.1016/j.tate.2016.08.006
- Klein, E., Taylor, M., & Onore, C. (2012). Finding a third space in teacher education: Creating an urban teacher residency. *Teaching Education*, 24(1), 27–57. https:// doi.org/10.1080/10476210.2012.711305
- Kvale, S., & Brinkmann, S. (2009). InterViews. Learning the craft of qualitative research interviewing. SAGE Publications.
- Langley, A., Lindberg, K., Mørk, B. M., Nicolini, D., Raviola, E., & Walter, L. (2019). Boundary work among groups, occupations, and organisations: From cartography to process. *The Academy of Management Annals*, 13(2), 704–736. https:// doi.org/10.5465/annals.2017.0089
- Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. Cambridge University Press.
- Liljegren, A. (2012a). Pragmatic professionalism: Microlevel discourse in social work. European Journal of Social Work, 15(3), 295–312. https://doi.org/10.1080/ 13691457.2010.543888
- Liljegren, A. (2012b). Key metaphors in the sociology of professions: Occupations as hierarchies and landscapes. *Comparative Sociology*, 11(1), 88–112. https:// doi.org/10.1163/156913312X621631
- Lillejord, S., & Børte, K. (2016). Partnership in teacher education–A research mapping. European Journal of Teacher Education, 39(5), 550–563. https://doi.org/ 10.1080/02619768.2016.1252911
- Lillejord, S., & Børte, K. (2017). Lærerutdanning som profesjonsutdanning forutsetninger og prinsipper fra forskning [Teacher education as a professional education – preconditions and principles from research]. Kunnskapssenter for Utdanning.
- Little, J. W. (2012). Understanding data use practices among teachers: The contribution of micro-process studies. American Journal of Education, 118(2), 143–166. https://doi.org/10.1086/663271
- Liu, S. (2015). Boundary work and exchange: The formation of a professional service market. Symbolic Interaction, 38(1), 1–21. https://doi.org/10.1002/symb.137
- Martin, S. D., Snow, J. L., & Torrez, C. A. (2011). Navigating the terrain of third space: Tensions with/in relationships in school-university partnerships. *Journal of Teacher Education*, 62(3), 299–311. https://doi.org/10.1177/0022487110396096
- Mørk, B. E., Hoholm, T., Maaninen-Olsson, E., & Aanestad, M. (2012). Changing practice through boundary organizing: A case from medical R&D. *Human Relations*, 65(2), 263–288. https://doi.org/10.1177/0018726711429192
- Nicolini, D. (2012). Practice theory, work, and organization: An introduction. Oxford University Press.
- Norwegian Agency for Quality Assurance in Education (NOKUT). (2019). Studiebarometeret 2019: Hovedtendenser [barometer of studies 2019: Main trends]. https://www.nokut.no/globalassets/studiebarometeret/2020/hoyereutdanning/studiebarometeret-2019_hovedtendenser_1-2020.pdf.
- Norwegian Ministry of Education and Research. (2017). Nasjonal strategi for kvalititet og samarbeid i lærerutdanningene [National strategy for quality and collaboration in teacher education] https://www.regjeringen.no/contentassets/ d0c1da83bce94e2da21d5f631bbae817/kd_nasjonal-strategi-forlarerutdanningene_nett.pdf.
- Norwegian University of Science and Technology (NTNU). (2019). Vi ønsker å bygge en bro mellom lærerutdanningen og skoleverket [We wish to build a bridge between teacher education and schools]. Job advertisement. https://www. jobbnorge.no/ledige-stillinger/stilling/168790/universitetslektor-i-norskkombinert-stilling-hos-ntnu-og-troendelag-fylkeskommune.
- Poyas, Y., & Smith, K. (2007). Becoming a community of practice the blurred identity of clinical faculty teacher educators. *Teacher Development*, 11(3), 313–334. https://doi.org/10.1080/13664530701644607
- Riessman, C. K. (2008). Narrative methods for the human sciences. SAGE Publications. Schatzki, T. R., Knorr-Cetina, K., & von Savigny, E. (2001). The practice turn in contemporary theory. Routledge.
- Vähäsantanen, K., Saarinen, J., & Eteläpelto, A. (2009). Between school and working life: Vocational teachers' agency in boundary-crossing settings. *International Journal of Educational Research*, 48, 395–404. https://doi.org/10.1016/ j.ijer.2010.04.003

M. Risan

- Waitoller, F. R., & Kozleski, E. B. (2013). Working in boundary practices: Identity development and learning in partnerships for inclusive education. *Teaching and Teacher Education*, 31, 35–45. https://doi.org/10.1016/j.tate.2012.11.006
- Wang, X., & Wong, J. L. N. (2017). How do primary school teachers develop knowledge by crossing boundaries in the school-university partnership? A case study in China. Asia-Pacific Journal of Teacher Education, 45(5), 487–504. https://doi.org/10.1080/1359866X.2016.1261392
- Williams, J. (2013). Boundary crossing and working in the third space: Implications for a teacher educator's identity and practice. *Studying Teacher Education*, 9(2), 118–129. https://doi.org/10.1080/17425964.2013.808046
- Williams, J. (2014). Teacher educator professional learning in the third space: Implications for identity and practice. *Journal of Teacher Education*, 65(4), 89–99.

https://doi.org/10.1177/0022487114533128

- Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college- and university-based teacher education. *Journal of Teacher Education*, 61(1-2), 89-99. https://doi.org/10.1177/0022487109347671
- Zeichner, K., Payne, K. A., & Brayko, K. (2015). Democratizing teacher education. Journal of Teacher Education, 66(2), 122–135. https://doi.org/10.1177/ 0022487114560908
- Zietsma, C., & Lawrence, T. B. (2010). Institutional work in the transformation of an organizational field: The interplay of boundary work and practice work. *Administrative Science Quarterly*, 55(2010), 189–221. https://doi.org/10.2189/ asqu.2010.55.2.189