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Pedagogical differences and similarities between male and female educators, and their impact on boys’ and girls’ behaviour in early childhood education and care institutions in Austria

Johannes Hubera and Bernd Traxlb

aFaculty of Education, University of Innsbruck, Innsbruck, Austria; bFaculty of Natural Sciences, MSB Medical School Berlin, Berlin, Germany

ABSTRACT
Greater public and scholarly awareness of the educational influence of males (men and fathers) on child development has generated a parallel need for empirical research into the gender-related structure and dynamics of relationships between girls/boys and female/male educators in early childhood education institutions. The Austrian W-INN pilot study, carried out between 2010 and 2012, used a cross-sectional mixed-methods design (video-based observation and questionnaires) to research possible pedagogical differences and similarities between male and female educators, and their impact on boys’ and girls’ behaviour in early childhood education institutions. Ten Austrian Early Childhood Education and Care (ECEC) groups were recruited: 5 female-only and 5 mixed-gender teams of educators, 30 children (15 boys, 15 girls) aged 4–6. Analysis of data on educational dimensions reveal male and female educators hardly differ (the exception, men are significantly more permissive). Mixed-gender teams produce significantly greater social mobility among children than do female-only teams. Analysing children’s behaviour towards educators, clear gender specific effects can be found across various levels of inquiry: girls react less obviously to an educator’s gender; boys, especially, are drawn significantly more frequently to a man in the ECEC team. Implications for pedagogical professionalism as well as limitations of the results are discussed.

Introduction
International literature on the educational influence of males on children, and more generally on ‘gender balance’ in the Early Childhood Education and Care (ECEC) workforce, has increased gradually over the past 15 years (Cameron, Moss, and Owen 1999; Rolfe 2005; Brownhill, Warin, and Wernersson 2015; Peeters, Rohrmann, and Emilsen 2015; Brandes et al. 2016; Weegmann and Senger 2016). Within the scholarly discourse on the importance of men in childcare, various
configurations of argumentation can be identified, so too various themes and methodological approaches for investigating associated questions.

The endeavour to achieve greater inclusion of men and fathers in childcare since the middle of the 1990s, initially, was primarily motivated by the ideal of gender equality, the aim of a balanced distribution of paid employment and privately performed childcare; and, therewith, improved access for women to the labour market. In pursuit of the dissolution of traditional role arrangements, a second central motif consisted in the recruitment of men as educators, to provide children with a more gender-balanced personnel structure, as well as, above all, diverse male ‘role models’. Associated with this was also the hope of making a kind of ‘father substitute’ accessible to children, given the apparently increasing number of families deprived of fathers. (‘Children need men!', a slogan that has gained increasing public attention, is often heard in connection with the lack of men in childcare and educational institutions.) Whether and to what extent male educators in ECEC settings can (and wish to) actually fulfil these externally imposed expectations, and which supposedly ‘specific’ characteristics they should provide for this purpose, was and continues to some extent to be discussed contentiously (e.g. Cameron 2001; Brownhill 2015).

Nonetheless, in the past two decades in the European context (e.g. in Belgium, Germany, Norway), on the local and national levels, increased efforts have been undertaken to identify possible barriers that stand in the way of the recruitment of male educators, as well as to develop strategies which make the field of childcare more attractive for men (e.g. Peeters 2007; Vandenbroeck and Peeters 2008; Koch and Farquhar 2015; Peeters, Rohrmann, and Emilsen 2015; Pirard, Schoenmaeckers, and Camus 2015). In this regard, studies can increasingly be found in which men are asked about the motive for their vocational choice, their general well-being, as well as their male experience of identity in a traditionally female-connotated vocational field (e.g. Sargent 2004; Aigner and Rohrmann 2012; Nentwich et al. 2013; Brody 2015; Wohlgemuth 2015). Additionally, their female colleagues were asked as well, and in some cases also the parents, about their view of male educators (e.g. Sargent 2004; Rentzou 2011). In this discussion, until now, the children’s perspective of male educators has received almost no attention (exceptions, e.g. Sumsion 2005; Huber and Traxl 2016).

In the meantime, on the international level, an intensive debate about professionalisation has developed which, alongside the original dimension of care, particularly emphasises the educational influence of preschool institutions. In this connection, following the ‘PISA shock’ at the beginning of the new century, especially in the German-speaking region, public education systems have been under close scrutiny. Knowing what a crucial foundation is laid in the early years of a child’s life for linguistic, cognitive, social-emotional, etc. development, one expected from an academic-level professionalisation of ECEs a substantially higher degree of diagnostic and intervention-related occupational competence (for the support and, where necessary, compensation of unequal educational prerequisites in the family of origin); and, accordingly, that the dimensions of care, education, gender and professionalism be brought into a new and balanced relationship.

Irrespective of this, research is still in its infancy concerning the question of what ‘effect’ male (and female) educators spark in children, particularly at pre-primary level, and upon which contextual factors this possibly depends. The theoretical scholarly discussion is by no means unified and, in some respects, is being conducted contentiously. On the one hand, the call for more men in the educational field and social sector suggests that the mere physical presence of men would lead to the qualitative improvement of a childcare centre; on the
other, and from the gender studies perspective, a reinforcement of gender roles is feared, where men – more or less as counterparts to their female colleagues – display gender typical activities or markedly differing play behaviours (Brandes 2011). Accordingly, professional discussion moves between the poles of emphasising ‘specifically male’ characteristics and efforts aimed towards a ‘gender neutral’ professionalism.

Due to a lack of available empirical studies on the gender-dependent behaviour of educators, and their possible effects on children, reference is frequently made to research of the family and fathers (Brandes et al. 2015). The few studies there are, in the context of attachment theory and gender research, give careful indications that secure girl–educator attachments develop more readily than secure boy–educator attachments (Ahnert, Pinquart, and Lamb 2006; Mayer et al. 2013). Possible reasons for this are the orientations to gender stereotypes of the mostly female educators (which correspond more with the expectations of girls, and consequently make the development of a secure attachment relationship easier), as well as the separating effect of boys (sub-)groups (Ahnert 2004). Therefore, there still remains considerable need for empirical research regarding gender related aspects of child development, especially with respect to the (re-)construction of interactive relationships between educators and children in preschool institutions (Rohrmann 2009). Previous studies, using interviews or questionnaires, focused almost exclusively on the self-reported behaviour of male and female educators, though without observing the concrete, everyday, reciprocal interactional practices of the educators with children (Rohrmann and Brody 2015).

The objective of the W-INN pilot study, or Innsbrucker study of effects (‘Innsbrucker Wirkungsstudie’), carried out between 2010 and 2012, was to do precisely that. We developed a mixed-methods research design to approach this question: What is the real significance of male educators, or mixed-gender teams of educators, in ECEC settings? Alongside the fundamental difficulty of making declarations about what are, to some extent, the subtle ‘effects’ of the gender of a person or educator on children (Brandes 2012), the project’s mixed-methods approach was in itself a challenge. The W-INN study, addressing an already complex issue in early childhood educational gender research, at a time when few empirical studies were available, entered new territory both substantively and methodologically.

In the present paper, we begin by explaining the objectives and research questions, then describe in detail both the sample and the methodology applied in the study. Then follows a presentation and discussion of the most important results with regard to early childhood education. Finally, there is a discussion of the gender-specific effects observed between educators and children, and the methodological limitations of the study are acknowledged.

Aim of the study

The research interest of the Innsbrucker pilot study on the effects of male ECEC educators (project direction: Prof. Dr. Josef Christian Aigner) was to collect the first differentiated evidence of possible ‘gender specific’ effects of mixed-gender and female-only educator teams in Austrian ECEC settings.

For this reason, the central research questions referred primarily to differences and similarities between female-only and mixed-gender teams of educators:

(1) Which differences and similarities can be determined in the specifically educational and interactional behaviour of the female and male educators?
(2) Which differences and similarities can be determined in the dynamics of the ECEC group?
(3) Which differences and similarities can be determined in the social and interactional behaviour of the children?

Therefore, on the one hand, the object of research is the male and female educators themselves: if and how, across a variety of dimensions, their specific pedagogical behaviours and interactions resemble or differ from each other; and, on the other, the effects of female-only, or mixed-gender teams of educators, on the group and individual behaviour of the children. For this purpose, the play, social and (dyadic) relationship behaviour of individual children, and the dynamics of the ECEC group as a totality, are studied in relation to the gender ratio of the educator-tandems. Additionally, the educators were asked for a self-evaluation as well as an assessment of the behaviour of selected children.

Sample

In total, 10 ECEC groups from the federal states of Tyrol and Salzburg could be recruited for collaboration in the pilot study. For the selection of ECEC institutions, alongside the openness and agreement of all participants to our research setting, a continuity of educator care of the children of at least 3 months was required. For those ECEC institutions in which there was general agreement with the research project, but a few parents in isolation excluded participation, individual solutions were sought. At the end of the recruiting process, five ECEC groups with female-only and five with male and female educators were recruited for participation. Most of the institutions were under municipal management, but there were also other (e.g. private) management variants. Then, appointments for observational investigations had to be coordinated with the management of the ECEC institutions and participating educators, and organisational details clarified (scheduling of the video recordings, the distribution and retrieval of questionnaires).

The total sample of the W-INN study comprised 22 educators, 206 parents and 164 children, who were acquired from 10 ECEC groups. Thus, of all educators surveyed, five of the male and five of the female educators were observed in their specific pedagogical behaviour; from the many children, the behaviour in everyday ECEC life of 30 so-called ‘children in focus’ (15 boys, 15 girls) was examined more closely (cf. Table 1). For the conduct of the investigation it was important that the children were between four and six years old, showed no developmental disabilities, and had sufficient command of the German language. To be selected as a ‘child in focus’ it was also important that a child was highly motivated to ‘work’ with the research team. In the final instance, the researchers always asked the children and the educators prior to selection.

Methods

A central concern of the study was to obtain as comprehensive a view as possible of the object of research. For this reason a combination of two assessment instruments was chosen: video-based recordings of the ECEC groups, and questionnaire responses from the respective ECEs. The assessment instruments were used once in each ECEC group (the
time point of measurement). In this respect, the W-INN study represents a mixed-methods quasi-experimental cross-sectional study.

The video-based recordings of everyday life in ECEC settings comprised the core of the study. To this end, video recordings were made of as many daily routine situations as possible (e.g. bringing and collecting children, morning rituals, periods of quiet and reflection, movement activities, directed group games and free play situations). Thereby, especially, the interactional behaviour between the educators and children was recorded; whereby, for reasons relating to limited technical resources, the camera could always only be focused on one of the (as a rule) two educators, that is to say on the main educator instructing the group. Sixty-five minutes of video material accrued, on average, for each ECEC group.

In the design of the questionnaires for the educators, the project team drew to some extent upon standardised assessment instruments from similar studies (BVZ 2006; Aigner and Rohrmann 2012; ASTAT 2012).5

A variety of forms of evaluation had to be used for the data analysis. Whereas, for the video data a rating process first had to be developed, the standardised questionnaire data could be evaluated quantitatively by way of statistics (cf. Figure 1).

The video data of the educators and children was evaluated by means of two distinct purpose-made analytical procedures (ratings). This was performed by a trained rating group of

<table>
<thead>
<tr>
<th>ECEC setting</th>
<th>Teams</th>
<th>Video recording in everyday ECEC life</th>
<th>Educator questionnaires</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Selection of educators</td>
<td>Selection of ‘children in focus’</td>
</tr>
<tr>
<td>1</td>
<td>f-f</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>f-f</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>f-f</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>f-f</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>f-f</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>m-f</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>m-f</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>m-f</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>m-f</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>m-f</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>164</td>
<td>10</td>
</tr>
</tbody>
</table>

Figure 1. Representation of the levels of evaluation.
students previously tested for their inter-rater reliability, who in addition had no knowledge of the research questions underlying the project.

**Educator rating**

A standardised observational instrument was used for the assessment of the ‘quality’ of educational behaviour in interaction with the ECEC group, the *Caregiver Interaction Scale (CIS)*, Arnett (1989), which includes the dimensions *positive interaction*, *punitive interaction*, *detachment* and *permissiveness* (the scale of values ranges from 1 ‘not at all true’ to 4 ‘very much true’). In this way, with the help of fixed observational categories, an approximate empirical answer can be found to the question: whether or not (and, if so, in what manner) it is the case that men and women differ from each other in fundamental forms of interaction. Each of the dimensions referred to is derived from the average value of a number of individual items. The dimensional mean values for male and female educators were calculated in this way and compared with each other. In this process the CIS scale was applied to educator behaviour towards the total ECEC group, that is to say not in relation to individually selected children.

To assess the ‘group dynamics’ induced by mixed-gender and female-only educator teams, three distinct rating scales were developed and applied to the videotaped group activities. Due to technical restrictions (one camera) the rating scales were only applied to the main instructing educator; therefore, the educational interplay between at least two educators (male/female, female/female or indeed other possible combinations occurring in pedagogical practice) could not be recorded systematically. All scales are graduated from 1 ‘very low’ to 7 ‘very high’.

The scale *group structure* was used to evaluate if, or how strongly, the children are directed by the main educator, and/or, rather, seem to follow an internalised structure.

The scale *social mobility* was used to evaluate if the majority of the children move freely around the room, for example, by changing the location of their activity, and/or if they interact in new subgroups. This data records if the main educator also manages to generate a lively togetherness in the group.

The scale *transitions* was used to evaluate if the group activities directed by the main educator are tendentially ‘fluid’, that is to say flowing into each other without overly strong breaks, somewhat as if an (invisible) ‘transitional space’ existed for the children between the activity units.

A further assessment task in the course of the video rating was to evaluate if male or female educators in general interact more frequently with girls and/or boys (verbally and/or nonverbally), as well as if these visible interactions with girls or boys are of a more positive kind (e.g. reciprocally demonstrated joy, praise, physical contact) or of a more negative kind (warning, punishing, ignoring, etc.). All three dimensions (frequency, positive interactions, negative interactions) were recorded independently of each other on a seven-level visual analogue scale, with the end points ‘girls’ and ‘boys’, and level 4 as a ‘neutral pole’.

**Child in focus rating**

For the assessment of the *behaviour of the children*, their attachment-related behavioural tendencies towards the main educator, as well as their play behaviour and social conduct, were used as central observation directing categories. The observational categories were
adapted on the basis of the Attachment Q-Sort test (Ahnert et al. 2012) and referred to the following content dimensions:

- **Need for security, presence, closeness** (example item: ‘If the educator moves very far, the child follows and continues their play in the area where the educator has moved to’)
- **Support with exploration, tasks, play** (example item: ‘The child often asks the educator for help’)
- **Joy in physical contact or physical closeness** (example item: ‘The child enjoys relaxing in the educator’s lap’)
- **Use of negative communication signals** (example item: ‘The child cries as a way of getting the educator to do what they want’)
- **Interest in communication and affective exchange** (example item: ‘If the educator laughs at or approves of something the child has done, then the child does it again and again’)
- **Striving for exclusive attention** (example item: ‘The child wants to be the centre of the educator’s attention’)

In that the chosen camera focus was on the main educator instructing the group, the video analytical evaluation was not aimed at an attachment diagnosis in the classical sense (for this a single child at a time would have had to be observed over a longer period), but rather at the detection of the children's self-adjusting behavioural tendencies in the proximity of the educator. This involves a dyadic focus nonetheless, in which what is at the centre of attention is the respective child’s self-initiated behavioural actions towards a specific educator (as an indicator of the child’s readiness and openness to interact with the educator).

Additional to the selected educator–child dyads, the play behaviour and social conduct of individual children in the ECEC group was evaluated by means of four self-constructed bipolar rating scales. Here, we were interested in possible differences or similarities in the behavioural tendencies of the children in ECEC groups led by mixed-gender versus female-only educator teams. The seven-level rating scale included the following content-related dimensions:

- **concentration/focus vs. fluctuation**: the child can maintain concentration on an activity for a considerable time, or alternates from one activity to another;
- **social–spatial mobility vs. immobility**: the child uses the entire room and has a wide action radius, or remains predominantly in one place;
- **social integration vs. isolation**: the child seems to be ‘cooperative’ because she/he enters into social interactions, or has hardly any contact to other children and is mostly occupied on his/her own;
- **introversion vs. extraversion**: the child mostly behaves in a quiet manner and fits in, or due to a ‘loud’ and outwardly directed manner becomes the centre of attention (e.g. through conflicts with other children or the educator).

**Questionnaire evaluation**

A questionnaire containing general questions, for example about professional qualifications and experience, was distributed to all the educators. Additionally, for the 30 selected ‘children in focus’ (15 girls, 15 boys), a further questionnaire was completed by the educator who knows each one best, in which the behaviour, interactions and relationships
of the children were evaluated. This was based on two standardised instruments: the *Verhaltensbeurteilungsbogen für Vorschulkinder* (VBV 3–6, Döpfner et al. 1993) [behavioural evaluation questionnaire for preschool children, ages 3–6]; and, the *Student–Teacher Relationship Scale* (STRS, Pianta 1992).

The VBV has the aim of recording behavioural peculiarities in children between the ages of 3–6, on the basis of the judgement of parents and ECEC educators. In contrast to other instruments, manifestations of age-typical phenomena in particular are better recorded with this questionnaire; and, furthermore, areas of competency in a child's behaviour (that is to say, not only deficits) are ascertained. The four differentiated behavioural dimensions include: social–emotional competencies (21 items), oppositional–aggressive behaviour (32 items), attentional deficiencies and hyperactivity versus play perseverance (19 items), emotional peculiarities (21 items). Information provided should in all cases be with respect to the behaviour of the child in the past four weeks.

In the version of the STRS in German translation, the relationship of a child to an educator is described from the perspective of the educator, in that the behaviour of the child observed by the educator, as well as the supposed feelings of the child towards the educator, flow into the evaluation. The STRS questionnaire includes an aggregated value and 3 sub-scales: conflict (12 items, e.g. ‘This child and I always seem to be struggling with each other’ or ‘This child easily becomes angry with me’), closeness (11 items, e.g. ‘I share an affectionate, warm relationship with this child’ or ‘This child tries to please me’), as well as dependency (5 items, e.g. ‘This child reacts strongly to separation from me’ or ‘This child is overly dependent on me’). All items are to be estimated on a 5-level scale, from ‘does not apply at all’ to ‘applies completely’, whereby no limiting time or date specification for the period of observation is provided.

**Results**

Data analysis was undertaken using IBM SPSS Statistics software, version 18.0. In addition to numerous descriptive and statistical analyses, mean value comparisons of potentially interesting group differences were also calculated. The most important results of the W-INN study, obtained from analyses of the observation data and questionnaires, are presented as follows: the educational and interactional behaviour of the educators; group structure and dynamics; the social and interactional behaviour of the children (cf. Figure 2).
Focus: educational and interactional behaviour of the educators

Generally, it can be stated on an individual basis that male as well as female educators present both higher and lower values in all four dimensions (scale of values from 1 ‘not at all true’ to 4 ‘very much true’). On average, summing all groups, somewhat higher values are recorded in the area of positive interaction, somewhat lower values in the area of punitiveness and detachment, and average values for permissiveness. The CIS aggregate value comprising all four dimensions yields an average of 2.81 (standard deviation 0.48).

The CIS aggregate value, in direct gender comparison, differs only minimally between both groups of educators. Male educators in our sample, however, interact somewhat more frequently in a positive manner, and somewhat less frequently in a punitive manner, with the children in their care. In the category detachment (which can be understood as a kind of disinterest in the child), there is almost no difference; though, in the category permissiveness, male educators show significantly higher value attributes ($p < .05$; cf. Table 2). One could provisionally interpret the findings in this way: in comparison with their female colleagues, male educators have a fairly ‘relaxed’ approach to consistently observing certain rules.

If in the educator rating one now also considers, alongside the CIS scales, categories such as the frequency of interaction, what is apparent at first glance is that there are no stark differences between male and female educators. The analysis of the distribution of positive interactions also shows, with the exception of one female educator who stood out due to more frequent positive interactions with girls, that all educators have a very well-balanced ratio of positive ways of dealing with boys and girls in their group. In the area of negative interactions, however, a less uniform picture emerges: it is apparent that when negative interactions take place, these occur proportionally more frequently with boys. In the direct educator comparison, the negative interactions with male educators are distributed evenly between boys and girls, while female educators get ‘caught up’ in negative interactions proportionally more frequently with boys.

These results of the rating process were subsequently checked with greater differentiation within the scope of a Masters thesis (Schreyer 2014). In this additional study, 408 interaction scenes from the entire video footage were identified between educators and children (cf. Figure 3).

The quantitative–statistical analysis confirmed the result of the rating process, that the frequency of interaction of male and female educators hardly differed. However, two notable differences could be found in relation to the group situations: male educators initiated interactional contact significantly more often ($p < .05$), and maintained the contact almost twice as long as their female colleagues ($p < .01$; cf. Figure 4).

**Table 2.** Mean value comparison CIS scale (men–women).

<table>
<thead>
<tr>
<th>CIS scale</th>
<th>Men</th>
<th>Women</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive interaction</td>
<td>2.78</td>
<td>2.32</td>
<td>0.207</td>
</tr>
<tr>
<td>Punitiveness</td>
<td>1.39</td>
<td>1.62</td>
<td>0.455</td>
</tr>
<tr>
<td>Detachment</td>
<td>1.52</td>
<td>1.62</td>
<td>0.757</td>
</tr>
<tr>
<td>Permissiveness</td>
<td>2.02</td>
<td>1.61</td>
<td>0.046*</td>
</tr>
<tr>
<td>Aggregate value</td>
<td>2.84</td>
<td>2.78</td>
<td>0.856</td>
</tr>
</tbody>
</table>

Notes

*p < 0.05;

N = 10 (5m, 5w).
Focus: group structure and group dynamics

With regard to the rating scales, in the area of group structure, it can be seen that groups on average exhibit a moderate measure of structuredness, whereby there is no intrinsic difference between male and female educator led groups. With regard to social mobility, overall one sees slightly above average mobility, whereby in direct gender comparison the social mobility of male ECEC educator led groups is significantly greater than it is in groups that are led by their female colleagues ($p < .05$). With regard to transitions, there is an average

<table>
<thead>
<tr>
<th>ECEC setting</th>
<th>educator's gender</th>
<th>frequency of interaction</th>
<th>interaction time (hh:mm:ss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECEC 1</td>
<td>male</td>
<td>38</td>
<td>00:29:15</td>
</tr>
<tr>
<td>ECEC 2</td>
<td>male</td>
<td>38</td>
<td>00:36:05</td>
</tr>
<tr>
<td>ECEC 3</td>
<td>male</td>
<td>44</td>
<td>00:32:47</td>
</tr>
<tr>
<td>ECEC 4</td>
<td>male</td>
<td>43</td>
<td>00:20:38</td>
</tr>
<tr>
<td>ECEC 5</td>
<td>male</td>
<td>48</td>
<td>00:32:07</td>
</tr>
<tr>
<td>ECEC 6</td>
<td>female</td>
<td>43</td>
<td>00:12:38</td>
</tr>
<tr>
<td>ECEC 7</td>
<td>female</td>
<td>47</td>
<td>00:17:07</td>
</tr>
<tr>
<td>ECEC 8</td>
<td>female</td>
<td>40</td>
<td>00:15:29</td>
</tr>
<tr>
<td>ECEC 9</td>
<td>female</td>
<td>30</td>
<td>00:16:39</td>
</tr>
<tr>
<td>ECEC 10</td>
<td>female</td>
<td>37</td>
<td>00:12:23</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td></td>
<td><strong>408</strong></td>
<td><strong>03:45:08</strong></td>
</tr>
</tbody>
</table>

*Figure 3.* Interaction sequences, male and female educators (Schreyer 2014, 96).
measure overall, whereby in direct gender comparison the groups led by a male educator show visibly higher values, although the mean value difference does not reach the level of statistical significance ($p = 0.084$; cf. Table 3).

Focus: social and interactional behaviour of the children

Observed interactional behaviour of boys and girls

Depending on the gender of the educator, when one analyses the 15 girls and 15 boys in our sample with respect to the behavioural dimensions mentioned, then there are very meaningful effects: while for the girls the contact behaviours are rather evenly distributed across male and female educators (that is to say, there appears to be no systematic connection between the gender of the educator and the contact behaviour shown by the girls), the behaviour of the boys reveals clear differences in their approach to male and female educators.

The need for security, presence, closeness is shown by boys towards male educators in around 72% of all cases, in comparison to 25% towards female educators (girls show this need towards male educators in approx. 63% of cases, in comparison to approx. 57% with female educators).

### Table 3. Mean value comparison of group dynamics (men–women).

<table>
<thead>
<tr>
<th>Group dynamics</th>
<th>Men</th>
<th>Women</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group structure</td>
<td>4.00</td>
<td>4.20</td>
<td>0.792</td>
</tr>
<tr>
<td>Social mobility</td>
<td>5.60</td>
<td>3.60</td>
<td>0.046*</td>
</tr>
<tr>
<td>Transitions</td>
<td>5.00</td>
<td>3.40</td>
<td>0.084</td>
</tr>
</tbody>
</table>

Notes

*p < 0.05;
N = 10 (5m, 5w).
Support with exploration, tasks, play is likewise sought from male educators by boys in around 72% of cases, in comparison to 25% from female educators (girls seek exploration assistance in approx. 63% of cases from male and approx. 14% from female educators).

The joy in physical contact or physical closeness is expressed by boys towards male educators in approx. 57% of all cases, in comparison to 0% towards female educators, exceeding the critical value and becoming statistically significant ($p < .05$); the girls’ comparison is 28.6% towards female and 12.5% towards male educators.

The interest in communication and affective exchange is observable in 100% of male educator–boy dyads, in comparison to 37.5% of female educator–boy constellations, likewise becoming statistically significant ($p < 0.05$); in comparison the girl–educator dyads: 75.0% of all cases towards male, approx. 43% towards female educators.

The behavioural dimension striving for exclusive attention (which, in attachment theory, is a sign of relationship insecurity in the sense of a [too] limited trust of the child in the reliable availability of the caregiver) also occurs significantly more frequently in male educator–boy interactions (71.4%) than female educator–boy dyads (12.5%; $p < 0.05$); and, the comparison for girls: 12.5% towards male, not even once towards female educators. We understand this observation provisionally as an intensive wish on the part of the boys to establish or maintain contact with a male educator, and not as a negative or insecure aspect of the interactional formation. The use of negative communication signals, in our observational analysis, is almost non-existent, i.e. practiced neither by boys nor girls towards educators of either gender.

Observed play behaviour and social conduct of boys and girls
Supplementary to the selected educator–child dyads, the general play behaviour and social conduct of individual children in the ECEC group was subsequently evaluated with regard to various dimensions. Four self-constructed bipolar rating scales were used, with seven-level observational dimensions to record the extent of concentration/focus (vs. fluctuation), social–spatial mobility (vs. immobility), social integration (vs. isolation) and introversion (vs. extraversion). Here again, we made use of evaluation scales, which allow a kind of ‘visual diagnosis’ of certain behavioural tendencies of the children, and, with which to gain initial indications of differences and similarities between mixed-gender and female-only educator teams.

In direct gender comparison, it is evident from our video observations that girls are clearly ‘more focussed’ than boys, that is to say more concentrated, more task-focused, quietly centred, etc.; and, conversely, boys draw attention through ‘fluctuation’ (alternating from one activity to another, etc.), which corresponds with professional practitioners regularly reported everyday observation of the restless, outwardly directed (‘externalising’) activity of boys. The group difference on average is even so large that it exceeds the critical value, and therefore becomes statistically significant ($p < .05$). Beyond this, in the direct comparison of boys and girls, there are no further conspicuous issues or differences.

In a second step, analysing the data comparison for boys and girls in mixed-gender and female-only educator teams, there are additional ‘effects’ for boys (but not for girls): boys in mixed–gender educator teams, for example, stand out with a high degree of extraversion, whilst their behaviour is clearly more introverted in female-only educator teams (the mean value difference is so large that it becomes statistically significant, $p < .05$). Furthermore, boys are tendentially more mobile in mixed-gender educator constellations (i.e. occupy more space, move around more, are thus less inactive), whereas with female-only educator
teams their behaviour is more static, i.e. remaining more in the one place, ‘fitting in’ more (cf. Table 4). There are no outstanding differences for boys in the behavioural areas *focus versus fluctuation*, and *social integration versus isolation*. Interestingly, across all dimensions, girls reveal no differences worthy of mention in play behaviour and social conduct, i.e. here also the combination of educators or the gender of individual educators appears to have little, and indeed less, visible influence on the girls.

**Behavioural evaluation of boys and girls by the educators**

With respect to the dimensions of the behavioural evaluation questionnaire (VBV, Döpfner et al. 1993), the following picture emerges in the direct comparison: in the view of the educators, girls impress with somewhat higher values in the area of social–emotional competencies, whilst boys differ from girls with a higher degree of oppositional–aggressive behaviour. Girls stand out in contrast to boys with a significantly higher degree of perseverance and concentration in play behaviour, therewith appearing to be less hyperactive than boys (*p* < .01). In the area of emotional peculiarities, there are no differences worthy of mentioning between the gender groups; and, with respect to the accrued data values and data differentials, it has to be remarked that all lie within the moderate ‘non-critical’, i.e. not clinically relevant range. The results correspond to some extent with professional practitioners reported experiences of rather more restless, less ‘socially compatible’ boys, and quietly focused, rather more ‘conforming’ girls.

With the STRS (Pianta 1992) relationship evaluation dimensions, offering the perspective of the educators, the following picture emerges from the direct comparison of the boys and girls: girls’ relationships to educators are significantly better (*p* < .05; cf. Figure 5); furthermore, on average, boys are somewhat more frequently experienced as conflictual, as well as more dependent. From the educators’ perspective, in the dimension closeness, no differences between the genders are worth mentioning.

In a second step, the behavioural dimensions of the two instruments were compared, in each case separately for boys and girls, and dependent on the educator combination (mixed-gender vs. female-only). This revealed that (VBV) boys achieve higher values for their behaviour within mixed-gender educator settings in the area of social–emotional competencies, but likewise also in their oppositional–aggressive behaviour. The dimension hyperactivity versus play perseverance is only minimally higher for boys in mixed-gender settings, and there are no differences worthy of mention in the area of emotional peculiarities. With respect to relationship qualities (STRS), boys in mixed-gender settings receive somewhat worse total evaluations for relationship quality, notably a somewhat elevated

<table>
<thead>
<tr>
<th>Play behaviour and social conduct</th>
<th>Male–female educator team</th>
<th>Female–female educator team</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluctuating vs. concentrated</td>
<td>3.71</td>
<td>4.63</td>
<td>0.246</td>
</tr>
<tr>
<td>Mobile vs. static</td>
<td>2.71</td>
<td>4.25</td>
<td>0.072</td>
</tr>
<tr>
<td>Isolated vs. cooperative</td>
<td>5.00</td>
<td>4.50</td>
<td>0.582</td>
</tr>
<tr>
<td>Introverted vs extroverted</td>
<td>5.43</td>
<td>3.38</td>
<td>0.017*</td>
</tr>
</tbody>
</table>

Notes

* *p* < 0.05; 
N = 15.
conflict potential and a minimally increased dependence; only one behavioural dimension stands out, closeness, as in mixed-gender teams it is significantly elevated compared to exclusively female educator settings ($p < .01$). Girls in mixed-gender educator settings show significantly higher values in the area of social–emotional competencies ($p < .05$).

**Discussion**

The results of the study show *clear gender-specific effects between educators and children*. Whereas girls distribute these contact behaviours rather evenly between male and female educators, the contact of boys to male educators is more frequent than to female educators. In three behavioural dimensions, interest in communication and affective exchange, joy in physical contact and striving for exclusive attention, the differences encountered even become statistically significant. Given the small sample, particular considerations attach to these findings.

This study cannot yet conclusively clarify why exactly this ‘man-boy effect’ occurs. Further, including qualitative, interactional analyses are required. One explanation heard again and again is that solely on the basis of the underrepresented everyday presence of male educators (and additionally absent everyday availability of fathers in families) they
acquire ‘special’ or ‘exotic’ status, and so become more attractive for the children. In our study, above all else it could be observed that it is the children themselves, on their own initiative, who make a difference between the educators. Crucially, and across all dimensions, boys more frequently seek and maintain contact to male educators. This leads to the conclusion that boys have a fundamental need for same-gender exchange and identification. Whether or not girls have exactly the same need for contact with opposite-gender, that is to say male educators, we consider by no means to be ruled out. The data we collected across various levels of inquiry, nevertheless, shows that girls react less obviously to the gender of an educator, whereas contrastingly – be it due to the underrepresentation of the ‘masculine’ in ECEC settings, be it due to carrying a burden of deprivations in educational contact to their fathers – it is precisely the boys who are drawn to a man in the ECEC educator team and, when available, possibly prefer as an equaliser over the majority represented ‘female’.

For example, the behavioural dimension closeness (STRS) stands out significantly more often for boys in groups with mixed-gender educator teams in comparison to those with female-only teams. This could indicate that boys in mixed-gender educator led groups possibly find it easier to outwardly demonstrate ‘female connotated’ conduct, such as seeking/allowing closeness, as the presence of an adult male educator offers boys a stable external anchor to safeguard their sensitive, still under construction gender identity. Thus, boys in groups with mixed-gender educator teams (video rating) also impress with a significantly higher degree of extraversion, whereas in groups with female-only educator teams they clearly behave in a more introverted manner. Additionally, boys are tendentially more mobile in mixed-gender educator constellations, they occupy more space and move around more; whereas with female-only educator tandems boys behaviour is more static, they remain more in one place, ‘fit in’, etc.

The behavioural tendencies recorded are obviously not solely influenced by the gender composition of educator-tandems, but rather, additionally, by other individual (i.e. the dispositions of child or educator) and institutional aspects (i.e. the educational approach, spatial organisation and material arrangements). However, we see comparable reporting, indicated across the spectrum of the mixed-method findings, as reliable evidence for an effect of the gender-composition of the educator team; which, especially for boys, given the presence of a male educator, appears to have a stimulating and enabling effect. In our view, this interpretive blueprint does not stand in contradiction to any of the various positions taken up in gender discourse’s contentious discussions over whether or not, and to what extent, certain attitudes and ways of behaving, etc., are sociocultural constructs or are natural predispositions. Just as it is impossible to negate the influence of the cultural–historical, it is neither possible nor desirable to ‘neutralise’ the gender-physical dimension and deny its subtle influence on socially interactive processes.

An observation worthy of discussion from the questionnaire evaluation is that boys in mixed-gender settings (presence of a male educator) stand out with increased oppositional–aggressive behaviour (non-critical value range) despite their existing social–emotional competencies. The expectation is framed all too often in popular psychology discourse – implicitly or explicitly – that male educators, due to the ‘masculine’, i.e. active and risk-seeking style of interaction attributed to them, could/should positively influence ‘the’ restless boys, to the effect that they behave in a manner that is socially acceptable or less externalising. The opposite appears initially to be the case: perhaps the presence of male educators evokes all the more the acting out of expansive aspirations possibly otherwise ‘kept
in check’ by the boys. This interpretation is supported by the findings already discussed; the behaviour of boys in ECEC groups with mixed-gender educator teams is significantly more extraverted than that of boys in female-only educator teams.

The STRS behavioural dimensions reveal no differences worthy of mention for the girls, dependent on the educator-combination, which in conjunction with the findings of the video based observations gives rise to the assumption that girls in ECEC settings are less susceptible to gender-related influences. Developmental psychological and specifically psychoanalytical theories regularly point out the higher vulnerability of the gender-related development in boys of preschool age. We can partially confirm this thesis with the comparison of boys and girls. The finding from the questionnaire evaluation, that girls on average have significantly better relationships to educators, also fits into this overall picture.

The findings discussed so far on the level of the children, with multiple gender differences between boys and girls, contrast in part with findings on the level of the educators. Dependent on the gender of the educator, the study delivered no evidence that either female or male educators commence interactions with differing frequency with children of either gender, or that there are significant preferences for either boys or girls on the part of educators of either gender. The finding that men, on their own initiative, significantly more frequently establish contact to groups of children, and maintain these contacts significantly longer than their female colleagues, is, however, remarkable. Male and female educators hardly differ from each other in terms of the educational dimensions (partly confirming the results of Brandes et al. 2015), but the men in our small sample are less enforcement-oriented (‘punitive’) and significantly more yielding, appearing to practice a ‘relaxed’ approach.

Mixed-gender and female-only educator teams do not differ in regard to group structure (amount of structuredness); however, social mobility is significantly higher in groups led by a male educator. Provisionally interpreted: mixed-gender teams appear to produce a greater mobility dynamic and more ‘social mixing’ among children than groups led by female-only teams. Furthermore, it appears that mixed-gender teams, tendentially, better manage to produce gentler and more appropriate transitions between various group activities, which allows the children to fluidly transition from one activity to another, and orient anew. Albeit these effects can only be comprehensively understood in the interplay with the female colleague, who represents an important counterpart. It can, however, be conjectured that the collaboration of a male and female educator in the ECEC group evokes, on a very subtle level, other impulses and dynamics than do female-led groups alone. Numerous reports based on practical experience support the thesis that men, in educator teams with women – with all the diversity of individual personalities – introduce an ‘other’, a new, possibly felt to be stimulating element, which – also according to the findings of our study – finds seismographic expression in the behaviour of the children.

It can be concluded from numerous results of methodologically diverse data collection procedures, in the ECEC context, that the often-heard demand for a so-called ‘gender neutral’ professionalism is, in practice, unachievable. Indeed, the gender factor is always present on various levels of interpersonal interaction, on the part of the educators as well as the children. Sometimes rather subtly, sometimes also quite explicitly. If one thinks about ECEC professionalism in a child-centred way, there is sufficient evidence from our investigation that educational activity needs, accordingly, to be gender-differentiated. In which forms this could take place, however, is a matter for further practical research.
Limitations

The W-INN study, addressing an already complex and difficult issue in early childhood educational gender research, has entered new territory both substantively and methodologically, and this brings with it certain limitations or relativisations in the documentation of the research findings.

It should first be noted that a quasi-experimental cross-sectional design with a small sample appears insufficient to measure a medium or long-term positive influence, 'effect', of male educators (i.e. a male in combination with a female educator) on the development of boys or girls. Long-term studies are required in order to present a reliable analysis of causal relationships, with at least two time points of measurement and larger samples, which can then (if at all) be interpreted in the sense of a statement of causality, of an unambiguous directional effect, with regard to a specific gender related educator combination.

Given that the rating process is limited to categorical assessments of complex interactive group activity, the results obtained must be considered cautiously. Future interactional analyses require supplementary data collection of intervening variables that could also influence the experience and behaviour of the children; alongside the temperament or personality dispositions of the child are the peer group dynamic, the 'pedagogical composition' or teamwork of the educator-tandem (parallel recording of data on the educational process quality of both educators), as well as the educational approach of an institution, to mention further possible influencing factors. Additionally advisable would be more extensive video recording time as well as the simultaneous use of multiple cameras.

Despite these restrictions or methodological points of criticism, we consider the findings of the W-INN study on the 'effects' of gender to be significant and forward-looking, encouraging greater research-led discrimination in the performance of gender-specific analyses of educator–child interactions in early childhood education institutions. The mixed-methods approach, in particular, has proven to be a challenging and productive way to obtain as complete a picture as possible of the behaviour of boys and girls in educational interaction with male and female educators.

Translator

Richard N. Myers, richardnathaniel@gmail.com

Notes

1. In the international literature there exists a heterogeneous use of terms regarding professionals in early childhood education institutions (e.g. childcare worker, (preschool) teacher, early childhood educator, ECE worker etc.). The authors decided to continuously use the term educator.

2. The authors have decided to use the term 'ECEC setting', also some variants such as 'ECEC institution,' for reasons of international understanding. In Austria, the official term is 'Kindergarten', which refers to ECEC institutions that care for and educate children, aged 3–6, in group settings.

3. Alongside the project director and the authors of this article, there are two additional project team members, Laura Burkhardt and Gerald Poscheschnik. A detailed description of the project is available in Aigner et al. (2013).
4. The research design for the project also used a third methodological approach, a projective test procedure (MacArthur Story Stem Battery) to gain access to the inner life of the children. This will not be discussed in further detail here (for details see Huber and Traxl 2016).
5. Additionally, the parents of all participating children were asked to complete a standardised questionnaire. This will not be discussed in further detail here.
6. We do not regard this dimension as a personality trait, but rather, initially, as a visible readiness to (re-)act on the ‘behavioural surface’ of a child.

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Notes on contributors

Johannes Huber, Dr. phil., a graduate psychologist, teaches and researches as a university assistant at the Faculty of Education, University of Innsbruck (Austria). His work focuses on (early) childhood development and socialisation, research of child–father relationships, basic principles and applications of attachment theory and psychoanalytic education, gender-related aspects of child development, theory and methodology of the ‘perspective of children’.

Bernd Traxl, Prof. Dr., is a professor for Developmental Psychology at the Medical School Berlin (Germany) as well as a privately practising psychoanalyst with additional qualifications for children and youth. Alongside numerous publications on children and youth, he serves on the Scientific Advisory Board of the journal Analytische Kinder- und Jugendlichen-Psychotherapie [Analytical Child and Youth Psychotherapy] and is the director of the annual Kinderanalytischen Konferenz [Child Analysis Conference] in Mainz.

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