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Teachers’ Views on Teaching Highly Able Pupils in a Heterogeneous Mathematics Classroom

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ABSTRACT
Aiming to bring teachers’ perspectives to research, teachers’ (N = 12) discussions are explored in the context of a professional development program on teaching highly able pupils (HAPs) mathematics. The findings show that the teachers perceive they have the competence to recognize HAPs, for example through continuous assessment. However, they express that collaboration with colleagues is necessary and that they would like their principals’ acknowledgement for their competence. They connect and verbalize their practical expertise with theories of teaching HAPs and demonstrate several criteria for teaching that successfully meet pupils’ learning needs in heterogeneous classrooms. Thus, they feel confident in how to orchestrate teaching that is inclusive of HAPs in heterogeneous mathematics classrooms.

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KEYWORDS
Differentiated education; highly able pupils; positioning theory; teachers

Introduction
For a long time, Swedish education has focused on pupils who have difficulties reaching educational goals, while very little attention has been given to pupils with the ability to excel in one or several subjects (Persson, 2014). Even though Sweden in recent years has taken important steps in the development of education for the highly able, Mattsson (2013) showed that there is a lack of theoretical underpinning regarding the education of highly able pupils (HAPs) in Swedish teacher education, both for pre- and in-service teachers. In this article mathematically highly able pupils (MHAPs) are assumed to be HAPs with a specific ability in mathematics, and are assumed to have similar learning characteristics.

In the international context too, there have been indications that teachers of HAPs do not provide the challenges in mathematics these pupils need (Leikin & Stanger, 2011; Mohokare & Mhlolo, 2017). For teachers to be able to give HAPs the guidance and support they need in their mathematical learning, Mattsson (2013) concluded that teachers first need to be able to recognize pupils’ high ability, and secondly that they need to know how to meet those pupils’ learning needs in mathematics.

One way to meet the needs of all pupils is through differentiated education (e.g., Tomlinson, 2016) or through adaptive teaching (Le Fevre, Timperley, & Ell, 2016). There are several overlapping characteristics in both strategies, such as the teacher responding to pupils’ different needs—for example, by continuous assessment, being flexible and adapting teaching instructions according
to pupils’ readiness, interest and learning needs (Le Fevre et al., 2016; Tomlinson, 2016). Differentiated education is especially necessary in a heterogeneous classroom. To be able to meet a broad diversity of pupils’ learning needs, teachers need to possess extensive knowledge in pedagogics and about their pupils—their knowledge level as well as their interests, hopes, dreams and fears (Parsons & Vaughn, 2016). Teachers who succeed in meeting the diversity of pupils’ learning needs share some characteristics. For example, they reflect and reason about their practice, continuously assess their pupils, are able to verbalize their knowledge and connect to theory, show understanding of their pupils’ differences, are aware of the complexity of pedagogical situations, are responsive to the pupils’ needs, and collaborate with colleagues (Le Fevre et al., 2016; Vaughn, Parsons, Gallagher, & Branen, 2016).

Several researchers on mathematics education for HAPs state those pupils’ learning needs are not met in heterogeneous classrooms (Leikin & Stanger, 2011; Mohokare & Mhlolo, 2017; Pettersson, 2011). It is important to recognize and meet these pupils’ learning needs, partly to prevent underachievement and drop-out (Lassig, 2003). In addition, researchers in this field often conclude that to be able to recognize HAPs teachers need focused professional development (e.g., Shayshon, Gal, Tesler & Ko, 2014). Teachers are key agents in changing teaching for highly able pupils (Tirri, 2017).

Previous research has provided knowledge of the characteristics of HAPs (e.g., Sternberg, 2017), of high ability in mathematics (e.g., Krutetskii, 1976; Sheffield, 2003,) and of learning needs for HAPs in general (Rogers, 2007), and more specifically for MHAPs (e.g., Benölken, 2015; Sheffield, 2003; Szabo, 2017). In addition, research has provided knowledge of the teacher characteristics required to facilitate teaching that meets the diversity of pupils’ learning needs (Le Fevre et al., 2016; Tomlinson, 2016; Vaughn et al., 2016). However, there has been little exploration of how these fields of knowledge can be combined to improve education for HAPs. This study explores mathematics teachers’ views on how to implement educational theory for HAPs in practice.

The context for this study is a two-year professional development program (120 hours) for teachers on the education of HAPs in the heterogeneous mathematics classroom. In the program, teachers discussed educational theory for HAPs in relation to their own teaching practice. During the first year of the program, teachers met for eight full-day meetings. In preparation, teachers read literature about high ability in general and in mathematics. Each meeting involved seminars, small-group discussions and workshops in which the participants for example discussed educational theory for HAPs in relation to their own mathematics teaching practice. In this study, the discussions from three small groups of teachers, four teachers in each group, were explored. To be able to answer the following research question, transcripts from the discussions (supported by video recordings of the discussions) were analyzed.

How do teachers who have undertaken a related professional development program express the orchestration of teaching HAPs in heterogeneous mathematics classrooms?

The overarching aim in this study is to bring teachers’ perspectives to research, by connecting mathematics teachers’ practical expertise with theories related to the education of HAPs.

**Theoretical Considerations**

This study is placed in its context through a brief review of literature on teaching highly able pupils and of literature addressing teaching to meet a diversity of pupils’ learning needs. In addition, the role of positioning theory in the analytical framework is described.

**High Ability and Teaching**

High ability in mathematics is in this article seen to be a subdomain of high ability in general. One of the frequently used models for high ability, in research as well as in practice, is the Differentiated Model of Giftedness and Talent (DMGT) (Gagné, 2005). In this study, high ability is, in line with
Gagné, defined as having the potential to develop more quickly and in more depth in comparison to age peers. According to the DMTG (Gagné, 2005), some individuals (10 percent) have high ability in some or several domains. The development of such individuals’ abilities is influenced by intrapersonal and environmental catalysts, and the outcome can be either positive or negative. Two of the catalysts that can influence the development process are the school environment and teaching. A negative influence could result in underachievement among HAPs (e.g., Lassig, 2003), while a positive influence can result in high achievement and well-being (Gagné, 2005).

Shayshon et al. (2014) point out that teachers should have the knowledge and skills to teach HAPs in mathematics. When HAPs are not given education that meets their learning needs, they can easily get bored and risk giving up learning in school (e.g., Lassig, 2003; Mhlolo, 2017). Thus, as Vialle and Rogers (2012) state, teachers need knowledge of HAPs, who they are and their special needs in education. In addition, HAPs have the right to be taught according to their needs in the regular classroom (SFS 2010:800). But to be able to properly meet HAPs’ learning needs, teachers first need to be able to recognize HAPs (Mattsson, 2013), especially since teachers are, as Tirri (2017) states, the key agents for doing this.

**Teachers Teaching to Meet the Diversity**

There are some criteria characterizing teachers’ professional tasks that are proven to be successful for all pupils. Some criteria found by both Tomlinson (2016) and Vaughn et al. (2016) are:

(a) continuously and informally assessing their pupils,
(b) being reflective on their practice,
(c) having deep knowledge of their pupils,
(d) having a vision for their teaching.

To develop teachers’ skills in tasks (a)–(d), professional development can address the importance of teachers being responsive to pupils’ needs, using research as a source of information to identify learning-related challenges, and collaborating between different kinds of expertise (Le Fevre et al., 2016; Tomlinson, 2016).

Some professional tasks for teachers have proven to be essential to meet the diversity of pupils’ learning needs (Le Fevre et al., 2016; Tomlinson, 2016; Vaughn et al., 2016). This study connects to three of these tasks.

The first relates to continuous assessment of pupils. Such assessment should consist of both informal assessments, discussed by Vaughn et al. (2016), as well as formal assessment, for example, subject tests and other screening processes. Continuous assessment aims for example to identify pupils’ learning needs (Le Fevre et al., 2016); in this study it includes recognizing HAPs.

The second professional task used in the analysis is collaboration between colleagues, and relates to both being reflective, (b), and having a vision, (d). It can mean, being aware of HAPs and to collaboratively provide mathematical challenges.

The third and final professional task defined in this study is meeting pupils’ learning needs. The interpretation of this task includes a combination of having deep knowledge of the pupils (Vaughn et al., 2016), being responsive to the pupils’ needs (for example HAPs learning needs) and using research as a source of information for teaching solutions (Le Fevre et al., 2016).

The three professional tasks will be connected to expressed rights and duties as they have been defined in positioning theory.

**Positioning Theory**

The concept of “positioning” can relate to the attributes of a person or a group, and to the attribution of rights and duties (Harré, 2012). Positioning theory is built up by the triad storyline—speech act—
position (Harré, 2012). It is the dynamics in this triad that should be interpreted and that reveal the meaning in the communication, thereby also revealing how the participants are positioning themselves and others.

According to Harré and Moghaddam (2003) the context influences how participants express themselves in communication. In this study, it means that the professional development program and the teachers’ assignments in the program sanction what the teachers express in their communication with each other. Taking a holistic view, how the teachers express themselves is examined, and specifically, which rights and duties they express.

**Storyline**

In an episode of communication, a beginning and an end of the content can be identified. The communication in an episode has mainly one piece of content—for example, it can be about recognizing MHAPs. The storyline, a mutually agreed context for conversations (Harré & Moghaddam, 2003), describes the context in the episode of communication. The storylines can be predefined (Mellroth, van Bommel, Liljekvist, 2019) or found by analyzing existing episodes of communication, as in this study. The detected storylines describe the episode in relation to HAPs. More than one storyline and more than one position are possible in a speech act; both storylines and positions are flexible in their appearance (Herbel-Eisenmann, Wagner, Johnson, Suh, & Figueras, 2015).

**Speech Act**

A speech act can be the meaning of a short or long utterance by a participant in a communication (Herbel-Eisenmann et al., 2015). Gestures and body language can also be involved in the speech act. In this study, speech acts are described by transcripts together with video recordings of the conversations, which are data for the interpretation of the speech acts. It is the interpretation of the utterance that gives the meaning of what is said (Harré, 2012). A speech act is most often part of an episode of communication and should be interpreted in its context since “speech acts are the meaning that these words/actions have for participants” (Herbel-Eisenmann et al., 2015, p. 187).

**Positions**

There are various kinds of positions possible in positioning theory. Harré (2012) mainly refers to positions as rights and duties, where rights are defined as “what you (or they) must do for me” and duties are defined as “what I must do for you (or them)”. Harré (2012) describes rights and duties in the following way: Rights and duties come in pairs. Rights are connected to vulnerability—if someone has a vulnerability and is permitted to get help, then he or she has the right to be helped. Duties are connected to power—if someone has the power to remedy someone’s vulnerability and is permitted to act, then he or she has the duty to do so. Rights and duties may sometimes be implicitly expressed and therefore interpreted as a consequence of former speech acts, and sometimes explicitly expressed (Harré, 2012). In their study, Vanassche and Kelchtermans (2014) found that each analyzed position is connected to patterns of beliefs about teaching. “A position is a cluster of beliefs with respect to the rights and duties of the members of a group of people to act in certain ways.” (Harré, 2012, p. 196). In this study, clusters of beliefs are seen to be strongly connected to the implicitly or explicitly expressed rights and duties.

**The Study**

This section describes the context of the study, participants, data reduction and ethical considerations. Teachers who voluntarily chose to participate in professional development programs can be assumed to be interested in developing their teaching according to the given goals of the program.
In this study the program had a goal to develop teachers’ knowledge of teaching in the heterogeneous mathematics classroom and specifically address HAPs’ learning needs.

**Literature Used in the Professional Development Program**

It is assumed that the professional development program influenced what the teachers expressed. Therefore, the main content of the literature used in the program is briefly described here.

An online course from University New South Wales formed the main literature in the program¹ (UNSW, 2004). It contains six different modules, together covering topics like understanding high ability, identification of HAPs, social and emotional development of HAPs, understanding underachievement in HAPs, curriculum differentiation for HAPs, development programs and provisions for HAPs. The material uses the DMGT (Gagné, 2005) to define high ability.

Additional literature on high mathematical ability complemented the main literature. This literature was research-based and widely accepted in the field of mathematical giftedness and creativity. For example, Krutetskii (1976) describes some abilities found among MHAPs when they work with mathematical problems, such as the ability to quickly generalize, have a flexible mind, use and understand mathematical symbols, and have a mathematical cast of mind. Sheffield (2003) proposed the kind of mathematical tasks MHAPs should be given and how teachers should act to meet MHAPs’ learning needs. Benölken (2015) supports Sheffield (2003), for example regarding the importance that mathematical tasks have open entries and open ends as well as being engaging for MHAPs. Both Sheffield and Benölken highlight that these aspects of mathematical tasks are important for all pupils, not only MHAPs. Therefore, their articles and books are suitable for use in a professional development program aiming to improve heterogeneous classrooms in Sweden.

**Participants and Data Source**

The context for this study was a professional development program for teachers in mathematics, running from August 2015 until June 2017. The author of this article was also facilitator for the program. She did not, however, participate in the discussions or interact with the teachers during the sessions analyzed in this study. The program aimed to develop teachers’ competence to meet the learning needs of HAPs in heterogeneous mathematics classrooms. In parallel with the program the teachers undertook their regular teaching. They therefore had opportunity to continuously reflect on their newly gathered knowledge about HAPs in their mathematical classroom practice.

Data for this study comes from a 90-minute session, during the sixth meeting out of eight, in the first year of the program, all theoretical parts were then completed. The session was planned by the author in collaboration with a senior researcher in mathematics education. It aimed to help teachers reflect on the content of the program in relation to their own practice. Ten out of 15 teachers in the program participated in the session, all female. Two pre-service teachers, one woman and one man, also joined this session together with their mentor teacher. The man was a passive participant and did not join the discussions. The woman was actively invited to join the discussion on one occasion. The teachers were divided into three groups based on the age of their pupils. Group 1 consisted of four teachers (1A, 1B, 1C, 1D) teaching grades 1–3 (ages 7–9); Group 2 consisted of three teachers (2A, 2C, 2D) teaching grades 4–6 (ages 10–12), and the female pre-service teacher (2B); Group 3 consisted of three teachers (3A, 3C, 3D) teaching grades 7–9 (ages 13–15), and the male pre-service teacher (3B).

The data available for this study comprised full transcripts, together with video recordings of the sessions. Transcripts were produced by a professional transcript company, in total 90 minutes per group.

The session used as the base for this study aimed to make the participating teachers reflect on the literature and theories that they had spent approximately 45 hours reading and discussing during the

¹For the interested reader, the material is available free online; see link in the reference list.
program. Each teacher was given a booklet with short summaries of the content covered by the program. This study is based on the teachers’ discussions originating from some of the questions in the booklet; see Figure 1.

The teachers were encouraged to speak freely and they had to keep track of the time spent on each discussion part. Since all groups discussed freely, the questions posed in the booklet served merely as guides. The three groups controlled their own discussions, which is interpreted as a verification that it is the teachers’ thoughts and beliefs that are captured.

**Data Reduction**

The author read through all transcripts twice while listening to the video recordings. Through this, 18 episodes of communication that addressed topics relevant for the research question of this study were chosen. For all groups, this meant discussions related to HAPs in general and in some cases to MHAPs. Because the teachers themselves controlled their discussions the time spent varied: Group 1 took 9 minutes to discuss the topic, Group 2 took 17 minutes, and Group 3 took 29 minutes. The number of identified episodes of communication were for the three groups four, five and nine, respectively. For the time remaining of the 90 minutes, the teachers mostly focused on other questions given in the booklet, but outside the scope of this article.

Due to limitations of space, it is not possible to present all transcripts of all chosen episodes of communication. Table 1 gives an overview of the identified rights and duties from all episodes of communication chosen for analysis, and shows the presence of rights and duties, but not the quantity, in each episode of communication. The meanings of the codes for rights and duties are given in the section ‘Method of analysis’, they are summarized with the given abbreviation in Table 2. The parts of the episodes of communication in Tables 3–5 are chosen to give examples of how each of the nine identified rights and duties is expressed in the teachers’ utterances.

**Ethical Considerations**

When the professional development program was announced the applicants were informed that they could also participate in a research study. Those who chose to participate in the program were fully informed about the aim of the research, the methods, and that they would be anonymized in all texts connected to the research. All teachers participating in the program agreed and gave their consent to participate. During the program they were regularly reminded that their participation in the research...

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**Figure 1.** Guiding questions for the teachers’ discussions.
was voluntary and that they could end it at any time. Regardless of the research the participants received a certificate for the program. The ethical issues of the study were also discussed with senior researchers during a formal seminar. The two pre-service teachers were informed beforehand that the session was used for research; they also chose to sign the consent form and were informed that they could withdraw their participation if they so wished.

### Methods of Analysis

The underlying idea was to produce a method of analysis that highlights teachers’ views of orchestrating teaching of HAPs in their heterogeneous classrooms. Thus, teachers’ discussions in relation to the context of the professional development program on high ability and high mathematical ability were analyzed using positioning theory regarding expressed rights and duties. In line with the aim of the study, transcripts specifically addressing high ability, or mathematical high ability, were chosen for further analysis.

Expressed rights and duties were divided into two categories of special interest:

(P) Rights and duties connected to knowledge of HAPs.
(T) Rights and duties connected to the defined professional tasks for teachers.

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Table 1. Number of speech acts and identified rights and duties in each transcribed episode of communication, for each of the three groups of teachers.

<table>
<thead>
<tr>
<th>Teacher group: Episode of communication</th>
<th>Identified rights</th>
<th>Identified duties</th>
<th>Number of speech acts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1</td>
<td>TR3</td>
<td>PD1; TD3</td>
<td>4</td>
</tr>
<tr>
<td>1:2</td>
<td></td>
<td>PD2; TD3</td>
<td>8</td>
</tr>
<tr>
<td>1:3</td>
<td></td>
<td>TD3; TD4; TD5</td>
<td>7</td>
</tr>
<tr>
<td>1:4</td>
<td></td>
<td>PD1; PD2; TD3; TD4</td>
<td>8</td>
</tr>
<tr>
<td>2:1</td>
<td>TR3</td>
<td>TD3</td>
<td>13</td>
</tr>
<tr>
<td>2:2</td>
<td></td>
<td>PD1; TD4</td>
<td>7</td>
</tr>
<tr>
<td>2:3</td>
<td></td>
<td>PD2; TD3; TD4; TD5</td>
<td>9</td>
</tr>
<tr>
<td>2:4</td>
<td></td>
<td>PD1; TD3; TD4; TD5</td>
<td>9</td>
</tr>
<tr>
<td>2:5</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>3:1</td>
<td>PR1; PR2</td>
<td>PD1; PD2</td>
<td>10</td>
</tr>
<tr>
<td>3:2</td>
<td></td>
<td>PD1; PD2; TD3; TD4; TD5</td>
<td>5</td>
</tr>
<tr>
<td>3:3</td>
<td></td>
<td>TD3; TD4</td>
<td>11</td>
</tr>
<tr>
<td>3:4</td>
<td>TR4</td>
<td>PD1; PD2; TD4; TD5</td>
<td>23</td>
</tr>
<tr>
<td>3:5</td>
<td></td>
<td>PD1; PD2; TD3; TD5</td>
<td>10</td>
</tr>
<tr>
<td>3:6</td>
<td></td>
<td>PD1; PD2; TD3</td>
<td>6</td>
</tr>
<tr>
<td>3:7</td>
<td></td>
<td>PD1; PD2; TD3; TD4</td>
<td>19</td>
</tr>
<tr>
<td>3:8</td>
<td></td>
<td>PD1; TD3; TD4</td>
<td>10</td>
</tr>
<tr>
<td>3:9</td>
<td>TR4</td>
<td>PD1; TD4</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 2. Rights and duties with their abbreviation.

<table>
<thead>
<tr>
<th>Explanation of the respective abbreviation</th>
<th>Abbreviation for rights and duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>The right to be acknowledged for having knowledge of HAPs.</td>
<td>PR1</td>
</tr>
<tr>
<td>The right to get time to disseminate knowledge of HAPs.</td>
<td>PR2</td>
</tr>
<tr>
<td>The right to assess pupils outside the already existing teaching task.</td>
<td>TR3</td>
</tr>
<tr>
<td>The right to have access to tools easy to use in the identification process.</td>
<td>TR4</td>
</tr>
<tr>
<td>The duty to acquire knowledge of HAPs.</td>
<td>PD1</td>
</tr>
<tr>
<td>The duty to disseminate knowledge of HAPs.</td>
<td>PD2</td>
</tr>
<tr>
<td>The duty to continuously assess pupils.</td>
<td>TD3</td>
</tr>
<tr>
<td>The duty to collaborate with colleagues.</td>
<td>TD4</td>
</tr>
<tr>
<td>The duty to meet pupils’ learning needs.</td>
<td>TD5</td>
</tr>
</tbody>
</table>

Note: P—connected to knowledge of HAPs; T—connected to the defined professional tasks for teachers; R—right; D—duty.
The connection to knowledge, here knowledge of HAPs, was of interest because of the context of the program. The connection to professional tasks for teachers was of interest as it aims to highlight the teachers’ views of teaching in a heterogeneous classroom. Categories (P) and (T) both have sub-categories, which will be explained and connected to the background before presenting specific findings.

**Rights and Duties in Relation to Knowledge**

Having the right to something is comparable to be given permission to engage with that something (Harré, 2012). In this study, it was interpreted that the teachers implicitly or explicitly asked for rights connected to knowledge in their discussions. An implicit question connected to rights and knowledge of HAPs could be that the teachers expressed a lack of opportunity for collegial conversations to discuss their knowledge of teaching HAPs.

There are two sub-categories of rights used in the analysis in relation to knowledge, detected when the teachers implicitly or explicitly asked for them:

- **(PR1)** The right to be acknowledged for having knowledge of HAPs.
- **(PR2)** The right to have time to disseminate knowledge of HAPs.

According to Harré (2012, p. 204) the duty to know complements the duty to disseminate and “the duty to acquire knowledge is a reflection of the duty to remedy ignorance.” In the analysis, the “duty to know” was distinguished from the “duty to acquire knowledge.” There are two sub-categories of duties in relation to knowledge:

- **(PD1)** The duty to acquire knowledge of HAPs.
- **(PD2)** The duty to disseminate knowledge of HAPs.

In this study, PD1 was detected when analysis of the data revealed that the teachers expressed that they either have the duty to have or acquire knowledge of HAPs, meaning that if they do not have knowledge of HAPs, they have the duty to acquire the knowledge they lack. Also in this study, the duty to remedy ignorance was connected to the wish to remedy a lack of knowledge about HAPs. Therefore, these two duties were combined as PD2—the duty to disseminate knowledge of HAPs.

**Rights and Duties in Relation to Teachers’ Professional Tasks**

Like the case of rights in relation to knowledge, rights in relation to professional tasks for teachers were evident in expressions where the teachers asked for something implicitly or explicitly. Professional tasks that teachers do not perceive as belonging to themselves at the time of the discussion are defined as outside the already existing teaching task. That is, tasks that for example are undertaken by others. The analysis used two sub-categories of rights related to characterizations of teaching proven to be successful for all pupils (Le Fevre et al., 2016; Tomlinson, 2016):

- **(TR3)** The right to assess pupils outside the already existing teaching task.
- **(TR4)** The right to have access to easy-to-use tools in the identification process.

When TR3 is detected, it is interpreted as the teacher indicating that they lack opportunities to continuously assess pupils with the aim of recognizing HAPs. This means that they believe it is difficult to observe and identify HAPs within their perceived professional task. The explanation of TR4 is similar, interpreted as the teachers asking for extended resources to observe and identify HAPs—resources supporting continuous assessment for high ability that not were available for the teachers at the time of the discussion.
In the analysis, three sub-categories of duties related to the defined professional tasks for teachers were used:

TD3) The duty to continuously assess pupils.

TD4) The duty to collaborate with colleagues.

TD5) The duty to meet pupils’ learning needs.

All three duties are directly related to the three defined professional tasks for teachers—continuously assess pupils, collaborate with colleagues and meet pupils’ learning needs. The teachers’ discussions were interpreted as expressing duties in relation to these professional tasks when their expressions could be related to the respective definition of those tasks.

Summary of the Methods of Analysis

The analysis was performed in five steps:

1. Episodes of communication were chosen from the transcripts for further analysis. These generated the storylines.
2. Speech acts with expressed rights and duties were interpreted and connected to their sub-category.
3. Speech acts without expressed rights and duties were analyzed.
4. Expressed rights and duties were analyzed at group and individual level.
5. Storylines were analyzed at group level.

Findings

To transparently describe the findings, three tables with selected transcripts—one table for each group of teachers—are presented. A filled underline indicates expressed rights and dotted lines indicate expressed duties. Examples of how each right and duty was determined in the data are given after the transcript excerpts.

Examples of Rights in Relation to Knowledge

There are two analyzed rights in relation to knowledge: The right to be acknowledged for their knowledge of HAPs (PR1) and The right to get time to disseminate knowledge of HAPs (PR2). The analysis is exemplified here, first for PR1 as a part of utterance 1:8:3C, Table 5.

… and then the three of us are sitting there who have so much of the same knowledge.

Looking at the whole episode, this speech act is interpreted as the teacher thinking that those who participate in the professional development program have the right to be acknowledged for their knowledge, i.e., PR1, in front of other colleagues at their school. The example for PR2 is a part of utterance 1:9:3D, Table 5.

… but we should ask the principal to get two hours in June or something, where everyone should listen to us.

This speech act is interpreted as the teacher asking for a right, by suggesting that they should ask for permission to get time to disseminate some of the knowledge they have developed to their colleagues who are not participating in the professional development program.

Examples of Duties in Relation to Knowledge

As described by the analytical framework, there are two analyzed duties in relation to knowledge in this study: the duty to acquire knowledge of HAPs (PD1) and the duty to disseminate
knowledge of HAPs (PD2). An example of when duty PD1 is interpreted is in part of utterance 1:1:1C, Table 3.

... that you have them with you, that you know about them, when you look at the pupils

In the corresponding episode of communication, the speech act is interpreted as the teacher meaning that they, the teachers, should have deep knowledge of HAPs’ characteristics when they meet their pupils. Therefore, this is also an example of when the duty PD1 is more a duty to have knowledge than to acquire knowledge.

The other duty, PD2, is exemplified by the utterance 6:2:3D, Table 5.

... and that, we have to disseminate (A agrees) that knowledge.

The use of the words “have to” and “disseminate” make this episode an explicitly expressed PD2.

Table 3. Selected transcripts from Group 1. The speech acts are interpreted by their corresponding episode (E), their placement among the other utterances (No), and the teacher who performs the speech act (T).

<table>
<thead>
<tr>
<th>ENo</th>
<th>Transcript</th>
<th>Right /Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1:1C</td>
<td>Structurally but what we talked about that is first and foremost that you have them with you, that you know about them, when you look at the pupils</td>
<td>PD1 TR3</td>
</tr>
<tr>
<td>1:2:1A</td>
<td>Structurally I mean that if you are there yourself, like if I have 27 pupils in the classroom, not always, sometimes PD1 TR3 I have half classes. But first I need to know what it is, but if I sort of should structurally sit and assess pupils according to these characteristics of high ability, then you actually would like to be also an observer sometimes. I think so, because in the middle of the work it isn’t as easy to notice all things.</td>
<td>PD1</td>
</tr>
<tr>
<td>2:4:1B</td>
<td>As we believe. Yeah exactly because grade one is very early</td>
<td>PD2</td>
</tr>
<tr>
<td>2:5:1A</td>
<td>Yeah grade one is early</td>
<td>PD2</td>
</tr>
<tr>
<td>2:6:1D</td>
<td>But if you have two perhaps, one a simple problem-solving and one could be geometrics, yeah something, TD3 TD3 + then you do it like some sort of test. And if then someone shows huge interest we have some sort of guideline. (C agrees) And you can do some sort of read understanding diagnosis in grade two and remember to take this too</td>
<td>PD2</td>
</tr>
<tr>
<td>2:7:1A</td>
<td>Yeah it would be this one then, where was it, now then not unusual. No. Understand and uses abstract symbols very early could perhaps fit in there. But otherwise it’s the rich vocabulary and things like that.</td>
<td>PD2</td>
</tr>
<tr>
<td>2:8:1B</td>
<td>That’s what we pick up meanwhile (A agrees).</td>
<td>PD2</td>
</tr>
<tr>
<td>3:3:1C</td>
<td>Yeah exactly, well it becomes a bit difficult and maybe that is what people talk about then instead of thinking TD3 TD5 what can this could be. But I mean, if understand and, use abstract symbols at an early age then is very important they must see them and get to use them</td>
<td>PD2</td>
</tr>
</tbody>
</table>

Table 4. Selected transcripts from Group 2. The speech acts are interpreted by their corresponding episode (E), their placement among the other utterances (No), and the teacher who performs the speech act (T).

<table>
<thead>
<tr>
<th>ENo</th>
<th>Transcript</th>
<th>Right /Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1:2D</td>
<td>Thus important to have a good relationship with, special pedagogues or special education needs (SEN) teachers and other adults and together with the pupil, it is complex (C agrees)</td>
<td>PD1</td>
</tr>
<tr>
<td>2:2:2A</td>
<td>Then I also think if they are based on characteristic, or if it is based on these abilities. ‘cause I think that these are two totally different things (C and D agrees)</td>
<td>PD1</td>
</tr>
<tr>
<td>2:3:2C</td>
<td>You still need to be aware as a teacher, to be able to do this you need to be well educated to know which chara-PD1</td>
<td>PD1</td>
</tr>
<tr>
<td>2:4:2A</td>
<td>definitely, ‘cause you wouldn’t know otherwise (C agrees)</td>
<td>PD1</td>
</tr>
<tr>
<td>2:5:2B</td>
<td>But I’m thinking if you don’t know what they mean, like we did, we have read this very thoroughly (A agrees) gone through it word by word (B agrees). We have gone through this forwards and backwards with these abilities for almost a whole day (B and D agrees). No, but really studied this thoroughly, and it is not something very unusual as a teacher (A agrees). So who have read this through, aha yeah that one is very clever and can operate with numbers and other symbols, yeah it actually becomes a bit blurred (A and B agrees).</td>
<td>PD1</td>
</tr>
<tr>
<td>2:6:2B</td>
<td>it becomes really eh: if there is no template showing what it means, it really becomes more of an interpretation (C and D agrees). That you take in to account an ability this way or another</td>
<td>PD1</td>
</tr>
<tr>
<td>2:7:2C</td>
<td>it is up to the teacher a bit what is eh: (B agrees). So what opportunities are there to observe these in a structured PD1 way? Well you need to know about both Sheffield and Krutetskii, they proposed different, not opposites, but that different abilities are assessed in different ways.</td>
<td>PD1</td>
</tr>
<tr>
<td>3:5:2C</td>
<td>Exactly I need to do something here (D agrees) and what it is must, you have to look at it, what can it be? Can it TD5, TD3 be</td>
<td>PD1</td>
</tr>
</tbody>
</table>
Examples of Rights in Relation to Professional Tasks for Teachers

The expressed rights connected to professional tasks for teachers are connected here to “if and then” statements. For example, see utterance 1:2:1A, Table 3:

If I am going to assess pupils according to characteristics of high ability, then you actually would like to be also an observer sometimes.

Here, it is interpreted that the teacher means that to be able to perform the duty to assess pupils’ high ability, she needs a right. She is asking for: The right to assess pupils outside the already existing teaching task (TR3).

The second right connected to a professional task for teachers is: The right to have access to easy-to-use tools in the identification process (TR4). This right is, for example, expressed by the teachers...
when they address the use of various lists for identifying HAPs. The teachers highlight aspects like time and simplicity, exemplified by utterance 9:5:3D, Table 5.

_This one goes pretty fast (A agrees), it is important (C agrees)._ 

The statement that “it is important” is interpreted as strengthening the fact that the speech act expresses a right.

**Examples of Duties in Relation to Professional Tasks for Teachers**

One of the three analyzed duties in relation to a professional task for teachers is: The duty to continuously assess pupils (TD3). In line with the literature on teaching pupils with diverse abilities (Le Fevre et al., 2016; Tomlinson, 2016; Vaughn et al., 2016), this duty includes the teacher’s duty to find out as much information about the pupils as possible to fully understand them. This can, for example, result in the teacher recognizing HAPs. The duty includes paying attention to changes and making everyday observations, as well as formal assessments using tests or screenings. The analysis of this duty is exemplified by a part of utterance 3:5:2C, Table 4:

... you have to look at it, what can it be? Can it be 

In this episode of communication, the teachers discuss the opportunities and possibilities they have, with their knowledge from the professional development program, to identify HAPs. Before the utterance 3:5:2C they discussed a situation where a pupil has been identified as needing something from teaching that they have not yet been given; what the pupil needs is not defined. The episode of communication shows the teacher expressing that she has to look at the pupils and ask herself what the reasons for pupils’ behavior are. The Can it be is, based on the context, interpreted as Might the pupil be highly able?

The second duty analyzed in relation to a professional task for teachers is: The duty to collaborate with colleagues (TD4). This duty is expressed when the teachers involve other school staff in their discussions on identifying HAPs. This may be other teaching colleagues, colleagues with other professions like special education teachers and school psychologists, as well as colleagues teaching at other schools and levels. The analysis of TD4 is exemplified by utterance 3:7:3D, Table 5.

_But to be able to see if it is high ability, you might need your colleagues to think about these more generally._

In this speech act the teacher explicitly addresses colleagues to participate in correctly observing high ability in pupils.

The third duty expressed in relation to a professional task for teachers is: The duty to meet the pupils’ learning needs (TD5). In the expression of this duty, the teachers in some way connect their discussions to teaching actions. Sometimes they address HAPs in general, at other times the context reveals that they mean HAPs in mathematics specifically. This duty is exemplified by a part of utterance 3:3:1C, Table 3.

... they must see them and get to use them 

This is interpreted as the teachers having the duty to meet HAPs’ learning needs in two ways. Firstly, it is their duty to expose them to situations where the pupils can show their ability. Secondly, if the teacher recognizes that pupils have specific abilities, it is the teachers’ duty to make sure that the pupils use the ability.

**Examples of Rights and Duties, on Group and Individual Levels**

When summarizing the analyzed rights and duties it becomes obvious that there are more expressed duties than rights for all three groups of teachers; see Table 6. In Groups 1 and 2, the duty TD3, to continuously assess pupils, is the most common of the analyzed duties. In comparison, Group 3
expresses the duties PD1, PD2 and TD3 in equal amounts. PD1 and PD2 are duties relating to knowledge of HAPs and TD3 is a duty relating to teachers’ professional tasks.

There is neither an equal distribution of utterances among the teachers, nor an equal distribution of expressed rights and duties. Table 6 shows that there are two teachers (1C and 1D) and one teacher (3D) in Groups 1 and 3 respectively who dominate the number of expressed utterances. In comparison, Group 2 has a relatively equal distribution among the three in-service teachers (2B is the female pre-service teacher). The other pre-service teacher, 3B, does not make any utterances.

Further, the teachers in each of the Groups 1 and 2 who express most utterances express approximately the same number of utterances (Table 6). They also have a relatively equal distribution of expressed rights and duties, although teacher 2C is slightly more dominant in her group. In Group 3, however, the dominant teacher, 3D, expresses more than twice as many rights and duties compared to teacher 3C. Teacher 3A expresses one duty and one right.

Despite the unequal distribution among utterances and expressed rights and duties, what a teacher expresses through one speech act leads to the next speech act. This speech act can express a right or a duty, as will be shown in the next section. The teachers who do not speak as much, and do not express many rights and duties, therefore influence and are important for the interpretation of the whole episode of the communication.

**Utterances in Between**

As seen in Table 6, there are a relatively larger number of utterances without analyzed rights and duties. Through the lens of positioning theory, however, these include speech acts that are important for several reasons. They are included in the interpretation of the storylines connected to the episodes of communication. According to positioning theory, what is said by someone in a group influences what the others are saying (Harré et al., 2009), for example, what rights and duties someone else expresses. The different speech acts alternate between utterances with expressed rights and duties and utterances without. This is displayed in Table 7 using an example from the second episode of communication for Group 1, showing sequential speech acts.

The teachers address different issues in the utterances without expressed rights and duties. Sometimes they agree on what was said earlier; sometimes they give their opinions on different things. An example is seen in utterances 2:4:1B and 2:5:1A in Table 3, where teacher 1A and 1B state that identification of high ability in grade one is very early. Furthermore, the teachers contribute with their knowledge of high ability, exemplified by utterance 2:7:1A, Table 3. In this speech act, teacher 1A correlates this to some of the characteristics of MHAPs they have learned about in the
professional development program. After teacher 1A has contributed with her knowledge, teacher 1B expresses duty TD3; see utterance 2:8:1B, Table 3. It is interpreted that teacher 1B is saying that it is their duty, as teachers, to continuously pay attention to their pupils to fully understand them—duty TD3. Another similar example of teachers contributing with their knowledge of high ability is given by the four utterances 7:15:3D to 7:18:3A, Table 5. The teachers are highlighting some characteristics of HAPs and discuss the way they might create a mind-set about high ability; their discussion leads to utterance 7:19:3D, which expresses several duties: PD1, PD2 and TD3; see Table 5.

The teachers also comment on their learning process in the professional development program when not expressing their rights and duties; see utterance 2:5:2C in Table 4. Here they are commenting about the time they were given and have spent on the program. They highlight that it is rare for teachers to have as much time as they had, which leads to a conclusion that the literature in the program might be difficult to grasp without enough reflection time.

Further, the teachers are clarifying each other’s meaning through the utterances in between, exemplified by utterances 3:5:3D and 3:6:3C, Table 5. Such clarification can lead to an expressed duty, as in utterance 3:7:3D that expresses duty TD4. The teachers also remind each other about the literature and material used in the program; see speech acts 4:1:3D to 4:3:3D, Table 5. Here teachers 3C and 3D remind each other and criticize some of the identification lists presented in the professional development program.

In the in-between utterances the teachers express possible future situations in their classrooms; see utterances 4:17:3D to 4:22:3A in Table 5. Here the teachers give an example of a pupil who is not functioning in their classroom but who works well in a colleagues’ classroom. The discussion continues with utterance 4:23:3D, which expresses the duties PD2 and TD5.

**Storylines**

The analyzed storylines are connected to episodes of communication chosen to relate to the aim of this study. Therefore, the identified storylines are connected to high ability or high mathematical ability. However, since the teachers sometimes distinguish HAPs and pupils in general, the following storylines are identified: (1a) HAPs, (1b) MHAPs, (2) pupils in general. A summary of the results is shown in Table 8.

The results of the storyline analysis reveal that the contexts of the discussions mainly concern HAPs. The relation to mathematics is there, but mostly the teachers discuss HAPs in general terms. In a few episodes the context is about pupils in general.

The findings demonstrate that the most expressed duty is TD3, *the duty to continuously assess pupils*; see Table 6. This is especially noticeable for the teachers teaching younger pupils, Groups 1 and 2. The storylines clearly show that the teachers are discussing HAPs. Deeper analysis of the utterances reveals that the teachers are connecting TD3 to their professional tasks and relating the duty to their perceived knowledge of HAPs. In addition to duty TD3, Group 3 also expressed PD1, *The duty to acquire knowledge of HAPs*, and PD2, *The duty to disseminate knowledge of HAPs*, at a similar frequency; see Table 6. Although

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**Table 7.** Episode 2 for Group 1; gray shaded rows represent utterances without expressed rights and duties. Analyzed rights and duties are numbered in the order they occur in the corresponding utterance.

<table>
<thead>
<tr>
<th>Speech act: Teacher</th>
<th>PD1</th>
<th>PD2</th>
<th>TD3</th>
<th>TD4</th>
<th>TD5</th>
<th>PR1</th>
<th>PR2</th>
<th>TR3</th>
<th>TR4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:1D</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
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<tr>
<td>2:1B</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3:1D</td>
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<td>1, 2</td>
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<td></td>
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<tr>
<td>4:1B</td>
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<td>6:1D</td>
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<td>3</td>
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E. MELLROTH
teacher 3D makes the majority of utterances the other participating teachers play an important role. Based on positioning theory (Harré et al., 2009), what a teacher perceives as rights and duties, and expresses in the analyzed discussions, influences what another teacher says or does not say. Another example is when teachers contribute with knowledge which makes other teachers express rights or duties, exemplified in Table 3, utterance 2:7:1A followed by 2:8:1B.

In line with Harré (2012) the duties PD1 and PD2 are interpreted as follows: If the teachers’ colleagues (those who are not participating in the professional development program) have a vulnerability, for example, they are not aware of HAPs’ learning needs, then the teachers participating in the program have the duty to disseminate their knowledge of HAPs. In this way, their colleagues can fulfill their duty to acquire knowledge of HAPs. Further, according to Harré (2012), it would also mean that colleagues not participating in the program have the right to be recipients of the disseminated knowledge shared by their more knowledgeable peers.

**Table 8.** Identified storylines, 1a, 1b and 2, for each utterance in each analyzed episode (E) for each of the three groups of teachers.

<table>
<thead>
<tr>
<th>Group 1</th>
<th>E1</th>
<th>1a</th>
<th>1a</th>
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<tbody>
<tr>
<td></td>
<td>E2</td>
<td>1a</td>
<td>1b</td>
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<tr>
<td></td>
<td>E3</td>
<td>1a</td>
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<td>1b</td>
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<td>E4</td>
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<table>
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<td>E2</td>
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**Discussion and Concluding Remarks**

In this study, teachers’ discussions on orchestrating the teaching of HAPs in heterogeneous mathematics classrooms are examined. Previous studies have shown that teachers do not orchestrate teaching that meets HAPs’ learning needs in mathematics (Leikin & Stanger, 2011) and it is commonly concluded that teachers need professional development in educating HAPs (e.g., Shayshon et al., 2014). This study addresses the problems that previous studies have rarely combined: knowledge of HAPs with knowledge of teaching to meet the diversity of pupils’ learning needs. In addition, in the research field of educating HAPs, studies exploring what teacher expertise can bring to research are rare. The aim of this study is to bring teachers’ perspectives to research, by connecting teachers’ practical expertise with theories related to the education of HAPs.

The duty to continuously assess pupils, TD3, is one of the most expressed duties and it includes, for example, identification of pupils’ learning needs (Le Fevre et al., 2016). In the context of this study the dominance of TD3 reveals that the teachers mainly focus on how to recognize HAPs, when discussing how to orchestrate teaching them in heterogeneous classrooms of mathematics. This conclusion is further strengthened by the other frequently expressed duty, PD1—to acquire knowledge of HAPs. It is reasonable to assume that the teachers express this duty in order to be able to recognize HAPs. In addition, the teachers relatively frequently express the duty to collaborate with colleagues, TD4—interpreted as the teachers perceiving that collaboration is needed to be able to recognize HAPs. Through the lens of positioning theory (Harré, 2012), teachers in the professional development program perceive they have the power to recognize HAPs, but they cannot do it as a single teacher in a single classroom. Furthermore, the teachers express that they need
the principal to acknowledge their knowledge of educating HAPs. The need to be acknowledged is expressed as a right which, through positioning theory, means the teachers perceive their unused knowledge of HAPs as a vulnerability; they feel they should be permitted to use their knowledge and disseminate it to other colleagues.

Rights and duties come in pairs (Harré, 2012), and two pairs can be observed in the findings. Firstly, the teachers’ expressed right to be acknowledged by their principal (PR1) can be connected to their expressed duty to disseminate knowledge of HAPs (PD2). This pair can be interpreted to mean the teachers in the professional development program perceive that teacher colleagues most often lack knowledge of HAPs, but also that they have confidence in their own knowledge of HAPs. Framed by positioning theory, this means that the teachers participating in the program perceive they have the power to disseminate knowledge of how to orchestrate teaching HAPs in heterogeneous mathematics classrooms—if they are given the right to do so.

The second pair of rights and duties revealed by the findings is the teachers’ expressed duty to continuously assess pupils (TD3) to be able to acknowledge HAPs, and the corresponding right to assess pupils outside their already existing teaching task (TR3). However, it is also possible to interpret another duty, the expressed duty to collaborate with colleagues (TD4), as paired with the expressed right (TR3). If TD4 is interpreted as paired with TR3, it means that the teachers in the program perceive that collaboration with colleagues is needed for continuous assessment to be able to recognize HAPs. Whether or not collaboration with colleagues for the purpose of recognizing HAPs is perceived to be within or outside the teachers’ existing teaching tasks is not revealed by the findings.

According to Mattsson (2013) teachers first need to be able to recognize HAPs before they can learn how to meet their learning needs in mathematics. Indeed, the main part of the teachers’ discussions focus on how to recognize HAPs in the heterogeneous classroom. Therefore, the findings of this study indicate that teachers have started their own learning process in this same order. Nevertheless, when the teachers discuss how to teach HAPs in mathematics, they express a duty to meet the pupils’ learning needs (TD5). The interpretation made is that if a teacher has recognized a pupil’s high ability in mathematics, they believe it is their duty to offer opportunities where the pupil can use her or his abilities. Furthermore, the findings indicate that the teachers perceive that if they do not provide such opportunities, for example through challenging tasks, they do not give the pupil scope to develop their mathematical ability. Those teachers therefore show they have knowledge of how to meet HAPs’ learning needs in the heterogeneous mathematics classroom, in line with Szabo’s (2017) findings.

Utterances in between, together with expressed rights and duties, specifically the duty to continuously assess pupils, are related to teachers’ professional tasks shown to be successful for addressing a broad diversity of abilities (Le Fevre et al., 2016; Tomlinson, 2016; Vaughn et al., 2016). In addition, the teachers use their knowledge of educating HAPs in mathematics to reflect on their own practice; for example, when expressing their duty to continuously assess pupils, they connect their practices to theories of teaching HAPs. To orchestrate teaching inclusive for HAPs means that teaching should meet their learning needs (Tomlinson, 2016). Consequently, it means that teachers need to be able to recognize characteristics of HAPs. In this study, the teachers’ knowledge of orchestrating the mathematics teaching of HAPs is in line with research literature on educating MHAPs (e.g., Nolte & Pamperven, 2017; Szabo, 2017). Their confidence in their knowledge is verified by the utterances in between the speech acts, shown for example when one teacher informs the others about MHAP characteristics; see utterance 2:7:1A in Table 3.

Parsons and Vaughn (2016) write that to be successful in meeting the diversity of pupils’ needs, teachers need to have extensive knowledge of effective pedagogies as well as of their pupils. The findings of this study have shown that the participating teachers have a deep perceived knowledge of HAPs, shown for example through “the utterances in between,” and that they relate to this knowledge in their discussions on recognizing high ability in mathematics. Thus, the findings show that the participating teachers perceived they developed competence to orchestrate teaching that is inclusive of HAPs in heterogeneous classrooms. This study placed teachers in a professional development
program and examined what they expressed in discussions on orchestrating teaching of HAPs in heterogeneous mathematics classrooms: it revealed what teachers find themselves competent to do in teaching and the results contrast with previous research that often concludes that teachers do not meet HAPs’ learning needs (Leikin & Stanger, 2011; Shayshon et al., 2014).

In the study by Shayshon et al. (2014) teachers not participating in professional development programs on educating HAPs perceived themselves competent in meeting the needs of MHAPs and in differentiating instructions. The participating teachers in this study have engaged deeply in an extensive professional development program on high ability. The findings showing their knowledge to be in line with research literature on educating MHAPs strengthen the conclusion that these teachers have the competence to at least recognize HAPs in heterogeneous mathematics classrooms.

Interestingly, the findings of this study demonstrate that the teachers express far more duties in comparison to rights in their professional task of orchestrating teaching and learning that is inclusive of HAPs. This study does not reveal why the teachers rarely express rights. Possible reasons for this might be that the teachers mostly connect their work with duties or that the teachers were not directly asked to relate to present school rules or traditions, which would, according to Harré (2012), have given them permission to express a right.

This study aimed to connect teachers’ practical expertise with theories related to the education of HAPs. The findings show that the teachers see it as their duty to continuously assess their pupils and have deep knowledge of HAPs. Thereby they fulfill at least two of the criteria of teachers’ professional tasks proven to be successful for all pupils (Tomlinson, 2016; Vaughn et al., 2016); their teaching expertise is therefore verified as relatively strong. Mohokare and Mhlolo (2017) showed that teachers in general lack knowledge of how to recognize and support HAPs in mathematics. However, this study shows that the teachers who participated in professional development on gifted education were able to connect their practical expertise with theories of teaching HAPs. Thus, teachers in heterogeneous classrooms can develop knowledge of how to recognize HAPs and support them in mathematics. Teachers like those in this study are prepared to recognize and support HAPs according to their learning needs in the heterogeneous mathematics classroom. It will remain for future studies to investigate whether and how teachers who have participated in similar programs adapt their teaching methods to HAPs when meeting them in the classroom.

**Limitations**

This is a qualitative study and, as such, can never be completely objective. Inevitably there are many possible methodological options. For example, the teachers whose discussions are used as data in this study are not randomly chosen. They were all very eager to participate, learn and engage in the professional development program. It is important to mention that the findings and conclusions are based on the participating teachers’ perceptions. There was, however, no aim to generalize. Another kind of categorization or discourse analysis could have been used as an alternative analytical framework for this study, and it may or may not have resulted in similar findings. However, the choice of using positioning theory strengthens the findings. For example, analyzing the speech acts in the “utterances in between” was valuable, since what one says in a communication influences what others may or may not say (Harré et al., 2009). What the teachers express in their discussions is influenced by the literature they used in the professional development program, so it is not surprising that what they express is coherent with the literature. However, the teachers also bring their practical expertise to their discussions and it is the mix that brings in the teachers’ perspective.

**Disclosure Statement**

No potential conflict of interest was reported by the author.
References


