

# Supporting the teaching development of newly qualified teachers through lesson studies during their induction phase and mentoring programme

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As of the 2019/20 school year, newly qualified teachers employed to teach in Austrian schools will be entering a mentoring programme at their career start for the first time. This programme is the responsibility of the school authority and is to last for the induction phase of 12 months. Support to newly employed teachers is provided by collegial mentors and accompanying induction courses provided by the Colleges of Teacher Training. Teaching the curriculum of general competencies as well as the didactic and methodological principles of teaching the diverse subjects of the national curriculum are the stated priority development goals. In order to achieve this, the lesson study approach was chosen as an instrument of professional development support, as it takes advantage of the long-standing and unique professional experiences of all teachers and the school principal in an individual school within its social community.

KEYWORDS: career entry, induction phase, lesson study, mentoring, newly qualified teachers.

## 1. Introduction

Starting in the 2019/20 school year, a required mentoring programme is being implemented in Austrian schools for the first time to support newly qualified teachers. The first 12 months on the job represents the induction phase of entry to this profession. It must be stated that this an outstandingly profound change out of the many initiated in the last 25 years by

the governance of the Austrian school system. It affects all groups involved in schools: pupils, parents, newly qualified teachers, more experienced teachers, school principals and representatives of the school authority and the local community, as well as trainers providing continuing education for teachers and school leaders. The mentoring approach is intended to offer a forward-looking opportunity to integrate new colleagues into the team, quickly taking into account their unique professional capacities as well as the incomparable experience of the particular school located in its unique geographical and social community.

In the run-up to the Austrian induction phase and mentoring programme, a research

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project was conducted at the University College of Teacher Education Styria, in which young professionals and experienced colleagues at a school site used the lesson study approach to explore their teaching practice. One of its purposes was to derive conclusions on the learning effectiveness of their teaching during their induction phase and mentoring programme.

### 1.1. International perspectives

According to *Education at a Glance* (OECD, 2014), job entry programmes in primary and secondary education are compulsory in 18 out of 33 countries surveyed. These last on average one year and include mentors, school management and local education authorities. Cooperation with teacher education institutions exists in about half of the countries, for example in Norway, France or Switzerland. Mentoring is rewarded with salary raises, bonuses and/or apprenticeship reductions. In countries where there are no incentives available in terms of time or finances, such as Italy, formal mentoring programmes are also not compulsory. For beginners, full-time teaching is the reality in most countries. Reduced teaching commitments are more of an exception, such as in England, Wales or France, where first year entrants in England only need to fulfil 90 percent, in Scotland only 70 percent and in France only 30 percent of the teaching obligation in the form of lessons (OECD, 2006). The low teaching obligation in France is due to the fact that the career entry phase is still part of initial training. The qualification for independent professional teaching practice occurs afterwards through participation in the *Concours*, an additional examination procedure, which is the responsibility of public authorities.

### 1.2. Specific Austrian frame conditions

As indicated by the amendment to the Austrian teaching profession law (Dienst-

rechts-Novelle Pädagogischer Dienst, 2013), the new Austrian teacher training law (Bundesrahmengesetz zur Einführung einer neuen Ausbildung für Pädagoginnen und Pädagogen, 2013) and based on the joint efforts of the central Austrian government, ministry departments, institutions and stakeholders, Austrian students of teaching today achieve a degree leading to the education of either pupils aged 6–10 years (primary education), or older pupils 10–19 (secondary education) regardless of their future employment at a specific type of school. All teacher training programmes in the area of primary and secondary general education require the completion of a bachelor's degree programme and a subsequent master's programme, which can either be completed as a full-time study programme without a concurrent employment relationship or as a part-time on-the-job study programme taking place at the same time as the career start.

In addition, starting with the 2019/20 school year, the new Austrian teacher training law and the 2013 amendment to the Austrian teaching profession law stipulate an obligatory induction phase supported by a mentor for all new contract teachers in service to the state or federal government. Therefore, Austria is currently undergoing a fundamental reform in teacher education as well as in the teaching profession based on the new service law.

Having an employment contract is a precondition for the completion of the teachers' induction phase. Accordingly, the induction phase cannot be completed without being employed, and conversely, being hired for a subsequent teaching position is impossible without completion of the induction phase. The induction phase begins on entering the service and ends after twelve months.

According to Fresner (2019), advisably in the first quarter, the mentor shares a de-

velopment profile with the newly qualified teacher, which is supplemented by peer support, deliberate feedback about work results and developments, teaching skills and general expertise focusing on the school subjects, their fundamental content and the learning objectives in accordance with the national curriculum. Recommended questions in the profile include ones on the mutual expectations of the mentor-mentee relationship, perceived strengths and weaknesses, a discussion of the image of a professional teacher, the question of what is meant by successful teaching, what makes this school special and what individual goals the mentee should achieve. After discussing the development profile, voluntary visitations and observations by the mentor as well as on-request and scheduled follow-up meetings between the mentor and mentee take place. The mentor submits an interim report to the school principal and the school authority on the following aspects: awareness of the teaching profession, capability to manage diversity and heterogeneity, interpersonal and intrapersonal competencies, reflection and discourse skills.

No later than two months before the end of the induction phase, the school principal must report in writing on the success (significantly exceeded – exhibited – not proven) based on the recommendation of the mentor to the school authority. This report contains the following aspects in accordance with the legal framework (Fresner, 2019):

1. Teaching the curriculum as well as taking into account the didactic and methodological principles corresponding to the subject being taught,
2. Educational work,
3. Cooperation with others required in teaching and education – pupils, parents, teachers and school principals as well as representatives of the school authority and trainers providing in continuing teacher education,
4. Fulfilment of assigned functions, responsibilities as well as administrative tasks,
5. Successful participation in the obligatory induction courses organised by the Colleges of Teacher Education.

The newly qualified teacher finishing the induction phase must be given the opportunity to comment on this report. Finally, the personnel department of the school division will issue a certificate to the trainee completing the induction phase and the assessment to indicate whether the candidate has met the requirements or even exceeded expectations. This document makes it possible to extend the employment contract. During the induction phase, the official duties or amount of teaching time of both newly qualified teachers as well as mentors are not reduced. Teachers acting as mentors can assist up to three contract teachers (mentees) at the same time to advise them on planning and designing their lessons, analysing and reflecting on the activities of teaching and education, providing guidance where necessary and supporting career development, also based on classroom visits and observations (Dienstrechts-Novelle Pädagogischer Dienst, 2013).

## **2. Theoretical background on the career entry of newly qualified teachers**

Career entry is of particular relevance to Hericks (2006). In this phase, the development from rule-based “knowing that” to experience-based “know-how” takes place. The knowledge acquired during training is restructured, condensed and networked according to practical requirements. In the entry-level phase, teachers are required to “further develop the already acquired competence of dealing with new requirements” (Keller-Schneider

2014, p. 103). Hericks sees the acquisition of specialist knowledge and specialist competencies as a primary task of training as well as dealing with technical issues and methods. In the phase of starting a career, it is now important to “relate them to the design of lessons and to develop a personal style as a teacher” (Hericks, 2006, p.100).

Furthermore, the phase of starting a career is characterized by many expectations towards the newcomer (Böhmman, 2010). Pupils expect stimulating lessons, colleagues look forward to new impetus and new ideas, and the school management expects momentum for the school team as well as school development. In addition, there are often relatively high expectations of young professionals with regard to good teaching and sustainable learning processes. The core task of teachers’ work is the teaching process itself. The outcome reveals professionalism or non-professionalism. Without the willingness to invest the effort and time in developing one’s own lessons, professional development does not start (Hericks 2009, p. 2). According to Hericks (2006), this core task is associated with four development tasks. These require teachers:

- to clarify their own role as a teacher; to cope with their own weaknesses and limitations and to create something akin to their own style (development task of finding a role to establish a professional identity),
- to develop a concept of their role as a facilitator of subject matter (the development task of knowledge transfer),
- to learn to respect pupils as persons as well as to recognise their individual development needs (the development task of recognition),
- to master the possibilities and limitations of the institutional framework and to build and shape cooperative relationships (the development task of cooperation).

The research on professional biographical development shows that handling these developmental tasks is formative and sets the trend for further development (Veenman 1987, Hirsch 1990, Terhart et al 1994, Henecka, Lipowsky 2002). To prevent young teachers from falling into unreflected recipes and habits, accompaniment is necessary, which starts at the single school level in the single classroom, and expands to the levels of regional networks and teacher training (Keller-Schneider and Hericks 2013).

### 3. Theoretical background on lesson studies

For newly qualified teachers to successfully fulfil the first requirement to the end of the induction phase – *Teaching the curriculum as well as taking into account the didactic and methodological principles corresponding to the taught subject* (Fresner, 2019) – the lesson study approach is stated to be an effective and forward-looking method, using the synergies between all people involved in the induction phase and the mentoring programme in a single school location.

Lesson studies have been a tradition in Japan for more than 100 years. They can be seen as a variation of action research and correspond to the cycle of action and reflection described by Altrichter, Posch & Spann (2018). The main goal of lesson studies (Dudley, 2014) is to combine knowledge, transfer competencies and reflect, as well as to let teachers experience their own effectiveness. The focus of observation and analysis is on the learning processes of the pupils in general as well as on single cases of pupils. As stated by Perry & Lewis (2009), the implementation of lesson studies resulted in a significant increase of competencies for teachers as well as for pupils, as shown in American schools. This approach is

a unique way with low requirements to develop team teaching in a group of interested teachers at any school. The main focus lies in reflecting upon appropriate methods of teaching and effective strategies of learning. Monitoring and reflecting take place in the team of colleagues through the subjective theories, personal beliefs and individual experiences of each participant (Posch, 2015). As a result, the development task of teaching and knowledge transfer (Hericks, 2006) is the focus of the research interest. Teachers become increasingly familiar with the basic research approach, benefit from the experience, start to develop individual multi-perspective questioning and contribute to the discourse in their professional community. They are encouraged to take their first steps in action research. Furthermore, action research is presented and disseminated at the same time as a self-evident principle of personal development as well as of teaching development, which promotes school development. An innovative orientation towards instruction and a reflective attitude to that instruction is further supported by action research, which is enhanced by collaboration and cooperation (Rauch et al., 2014). Systematic evaluations (Fernandez, C. & Yoshida, M., 2009; Lo, M. 2015), particularly in English-speaking and Asian countries, show that lesson studies have a positive impact on pupils, teachers and schools. They significantly contribute to professionalising teachers by having them thoroughly reflect on their pedagogical actions (Morita, 2005, p. 407). Furthermore, there is a stronger link between daily practice and long-term goals, and collegial networks are expanded and strengthened (Lewis, Perry & Hurd, 2004). The effectiveness of teaching is increased and cooperation between teachers promoted (Lo, 2015, p. 3).

## 4. Project design

### 4.1. Key points of the entire project

At first, all participating schools were invited to a kick-off event organised by the Styria University College of Teacher Education together with the school authority board, the research team and the coaches promoting teaching development. These coaches are lecturers in teaching methods in initial teacher training as well as in continuing teacher education, experienced in action research and counselling teachers.

This start-up consisted of a half-day seminar, the first part with an introduction to the project's intentions and the second part a discourse with coaches of the diverse subject-related development possibilities.

Finally, each school team had to clearly decide which subject to choose for the lesson study approach from among: German as the first language, mathematics, general science and social studies, or English as a first foreign language. This choice of subject will be the focus of the lesson study approach to explore teaching practice and to gain insights into the learning effectiveness of the lessons developed, based on the curriculum for Austrian primary schools. Experts from the respective subject areas functioning as coaches were provided by the Styria University College of Teacher Education.

One month later, all participating teams were invited to a half-day seminar introducing the lesson study approach, provided by experts of the Styria University College of Teacher Education, who at the same time were involved in the research project as researchers.

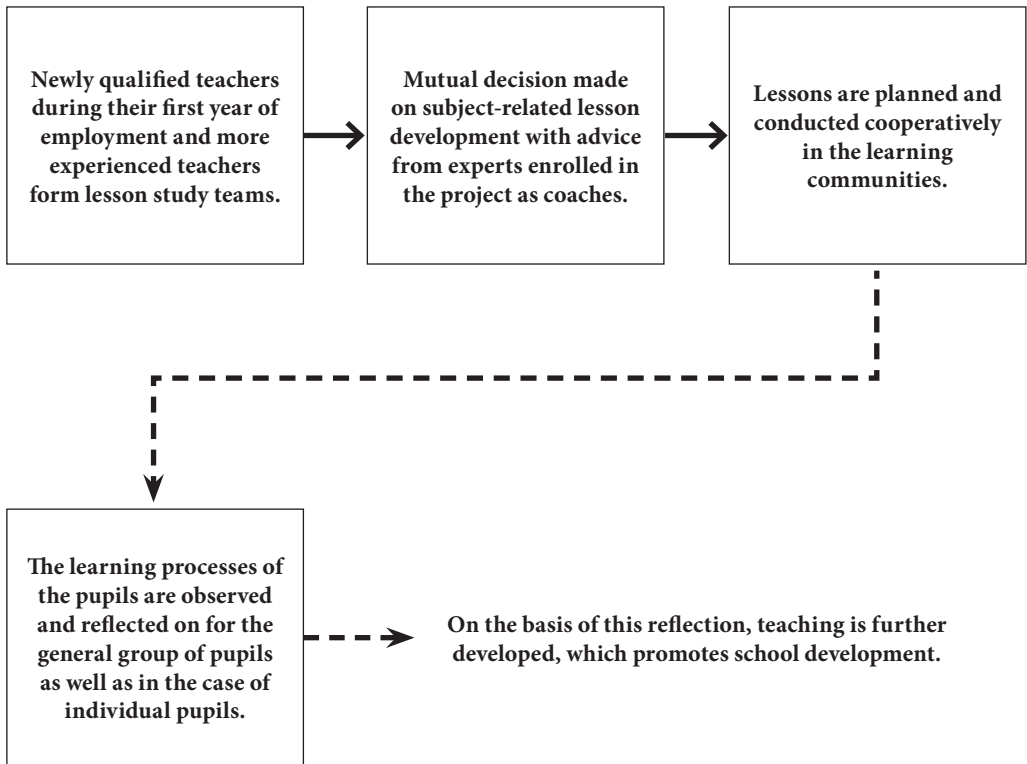
After this introduction phase, the lesson study cycles started. During this process, school teams were continuously accompanied by the subject experts from the Styria University College of Teacher Education who functioned as coaches. They supported the lesson study teams through long-distance counselling

using e-mail or telephone as well as counselling in person at the individual school by appointment with a frequency of one visit per cycle.

At the same time, research workers collected data during the course of the meetings, for example, during the kick-off seminar (base-line written questionnaire), in the second half of the project year (interviews),

and during the closing ceremony (final written questionnaire). Two of the authors of this paper analysed the written questionnaire and the interviews, one author worked as a coach moderating the reflection and analysing discussions on the lesson studies, and contributed his/her professional expertise to the further development of the teaching.

Figure 1. Project related lesson study approach.



Source: authors.

Furthermore, lesson studies are recorded during their implementation and a short movie presenting the project design was produced together (available at: <https://www.radioigel.at/lesson-studies/>). The generated teaching materials are collected, evaluated and shared through an online project platform, for example observation checklists, activities or sample lessons.

All these results and products were presented at a final event comprising the closing ceremony, with a festive awarding of certificates to each participant by representatives of the school authority and the Styria University College of Teacher Education, accompanied by the coaches and research team.

Figure 2. Multilevel project design.

	<b>Training events and counselling</b>	<b>Activities at the schools</b>	<b>Accompanying research</b>	
<b>October</b>	<b>Kick-off Event:</b> project presentation and team-building	<b>Forming the lesson study team and deciding on a specific subject area</b>  (German as the first language, mathematics, general science and social studies or English as a first foreign language)	<b>Written questionnaire</b>	
<b>November December</b>	<b>Introduction to the lesson study approach</b>	Cooperative planning and implementation of <b>lesson studies</b>	<b>Interviews</b> with newly qualified teachers and more experienced teachers	<b>Collecting the developed products and disseminating them via an online project platform</b>
<b>January February</b>	<b>Subject-specific counselling, networking and reflection meetings</b>	Cooperative planning and implementation of <b>lesson studies</b>		
<b>March April May</b>	<b>Subject-specific counselling, networking and reflection meetings</b>	Cooperative planning and implementation of <b>lesson studies</b>	<b>Written questionnaire</b>	
<b>June</b>	<b>Final event:</b> presentation and exchange of developed products, sharing experiences  <b>Certification and closing ceremony</b>			

Source: authors.

## 4.2. Research field

The entire project was conducted in 2015/16 and 2016/17 in two of the seven educational regions of Styria. The decision on using these educational regions was made in consultation with the school inspectorate based on the number of young professionals there. The educational region with the most new entrants was chosen as the project area in a respective year. All schools in the region with at least one entry-level trainee participated in the project for the duration of one school year.

## 4.3. Research interest and methodology of the accompanying research

### 4.3.1. Research questions

The research focused on the following three questions:

- What significance does subject-related teaching development have for newly qualified teachers as they start their career?
- What contribution do lesson studies make to the subject-related teaching development of newly qualified teachers as they start their career?
- Which structural and personal factors support the practice of lesson studies?

The first two questions are focused on the assessment of the subject-related competences of newly qualified teachers and the contribution of lesson studies to the development of subject-related teaching. The third question searches for the conditions of success for using lesson studies as an approach in the induction phase.

### 4.3.2. The sample

In the 2015/16 school year, a total of 15 young professionals in ten primary schools from the Eastern Styria region participated in the project; in the 2016/17 school year, 19 newcomers in eight primary schools from the Upper Styria region participated.

The greatest number of young professionals ( $n=34$ ) were between 21 and 25 years old with the common feature that all were employed in a school for the first time in their professional life.

Experienced colleagues nominated to be mentors ( $n=22$ ) were employed for five to almost 40 years. Several were appointed as delegates of the school leader ( $<5$ ). The majority were involved in classroom teaching, some teaching a different class of the same grade as the young professional whom they were accompanying and supporting. About half of this group volunteered for the project and to be a mentor, the other half was appointed, but nevertheless demonstrated a positive attitude towards the idea of the project and professional development.

The participating school leaders functioned in this role for at least four years. A characteristic of the Austrian school is the fact that principals are exempt from teaching if the school has 8 or more classes. Therefore, in 6 of the 18 schools, the more experienced teachers in the lesson study team also functioned as principals.



Figure 3. Research instruments, participants and response rates.

<b>Project year 2015/2016</b>	<b>Primary schools</b>	<b>Newly qualified teachers n=15</b>	<b>More experienced colleagues as well as principals with a double function (&lt;8-class primary schools) n=14</b>	<b>Principals without a double function n=4</b>
October 2015 written questionnaire	10	15 100%	12 86%	3 75%
interviews		8 (I 1 – I 8)	9 (M 1 – M 9)	
June 2016 written questionnaire		9 60%	6 43%	4 100%
<b>Project year 2016/2017</b>	<b>Schools</b>	<b>Newly qualified teachers n = 19</b>	<b>More experienced colleagues as well as principals with a More experienced colleagues as well as principals with a double function (&lt;8-class primary schools) n=14</b>	<b>Principals without a double function n = 8</b>
October 2016 written questionnaire	8	19 100%	8 100%	4 50%
interviews		11 (I 9 – I 19)	8 (M 10 – M 17)	1 (P 1)
June 2017 written questionnaire		16 84%	5 62%	5 62%

Source: authors.

### **4.3.3. Data collection, instruments and data processing**

The accompanying research followed a mixed-methods design in the form of written questionnaires at the beginning and at the end of the project period comprising a whole school year, differentiated according to roles and work experience, as well as problem-centred interviews (Witzel, 2000) with young professionals, experienced teachers and principals (see Figure 2). The mixed-methods approach was used due to the small number of cases as well as the requirement of having a multi-perspective approach.

In the second year, a case study (Pieper, I.; Frei, P.; Hauenschild, K. & Schmidt-Thieme, B., 2014) was conducted at a school location in order to provide holistic and realistic insight into the interaction of a large number of people applying the lesson study approach, lesson development and supervising the career entry of newly qualified teachers at the school. All school teams involved in this research project had at least one newly qualified teacher working at their school.

The written questionnaire at the beginning of the respective project year focused on demographic information, the professional biography, and the perspective of teaching and school development at the particular school. In the written questionnaire at the end of each project year, the focus of interest was on the factors supporting the practice of lesson studies. The questions of the written questionnaires were posed to all school principals, young professionals and experienced teachers from the participating schools. In addition, the questionnaire for the newly qualified teachers contained a block of questions to be analysed quantitatively based on the research work on entry into the profession by Hericks (2006). The data was analysed by using qualitative content analysis in accordance with Mayring

(2010) and frequency analysis. The response rate varied between 43% and 100%, depending on the target group and data collection point in time.

The guided interviews focused on the specific experiences of young professionals and experienced teachers with the lesson studies. A total of 36 interviews were conducted based on identical interview guidelines for all groups. These included questions on the experience of using the lesson study approach and its phases, the effects of subject-related coaching, the effects of the collaboration in the school team as well as questions for evaluating the project.

The project team analysed the data using the MAXQDA text analysis program. The categories were formed deductively from the questions of the interviews. The results of the interviews were correlated with the results of the written questionnaire and interpreted.

## **5. Presentation of selected results**

The results presented here concentrate on the questions relating to the importance of subject-related teaching development in the phase of career entry, on the importance of lesson studies in the phase of entering the profession, and on factors supporting the practice of lesson studies for learning in school teams. This is mainly why the results from the interview study are presented.

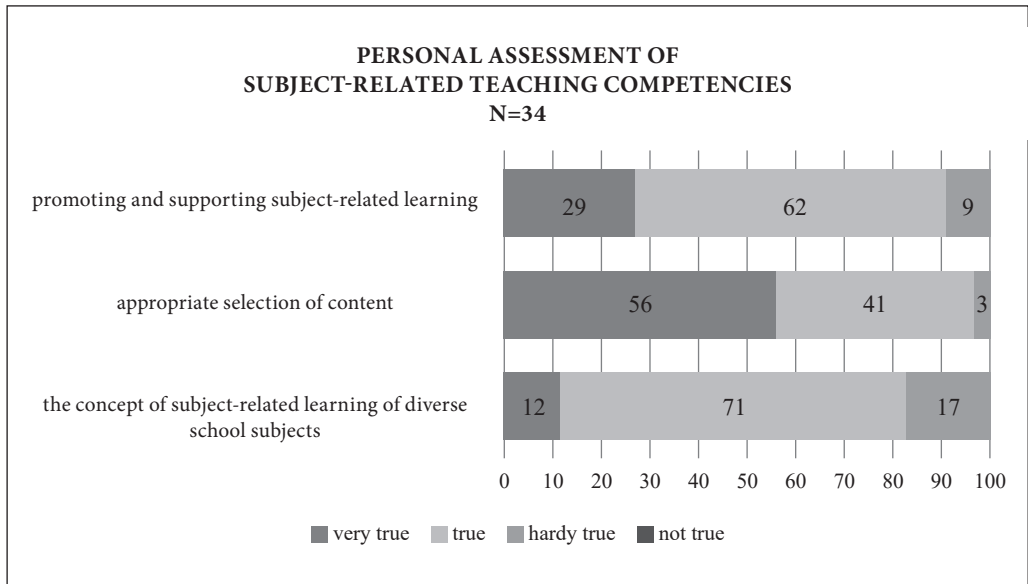
### **5.1. Personal importance of subject-related teaching development at work entry**

Following Hericks' four development tasks (2006), newly qualified teachers were asked to assess their competencies in the written survey. The descriptive analysis shows that most of the young professionals adequately assess their subject-related and subject-didactic competencies and therefore do not see the development task of know-

ledge transfer as a priority challenge. 91% of newly qualified teachers responded “very true” or “true” to the statement that they have developed a good understanding of the subjects to be taught. Furthermore, 97% rated the competency of appropriately

selecting the content to teach in a particular subject as “very true” or “true”. The competency to accompany the learning processes of the pupils in all subjects is rated by 83% of newly qualified teachers as “true” or “very true” and by 17% as “hardly true”.

Figure 4 Assessment of subject-related teaching



Source: authors.

Both the written survey and the interviews show that class management and time management are by far the biggest challenges.

It’s just this regulatory framework. In the beginning you are thrown into the whole thing while others who have been working for a long time know exactly what to look for. If you’re new to the game, you might not be so aware of the fact that the exam schedule is simply at the back of the student book, or you might not be so aware of how much time you need to hand out the homework plans without missing the departure of the school busses taking the kids home. The practical know-how to handle all this would be very helpful (...). [I 14, Career starter, yr. 2]

Also, interactions with parents and guardians is a central topic referred to by the young professionals during the interviews.

Yes, the most challenging one I definitely think is cooperation and interaction with parents. Of course, it is important to be treated as equals and to make a positive impression on parents. And it would of course be interesting, [to learn] how to do it best, how to get it done. [I 12, Career starter, yr. 2]

A career starter connects this central theme with her age.

(...) because I’m still so young, some people believe that they can treat me in a com-

pletely different way. There are great trainings-on-the-job to help you communicate properly with parents. [I 18, Career starter, yr. 2]

Requirements for cooperation in the system are also perceived as a development task rather than the further development of teaching. In this context, for example, the quality initiative of the Austrian Ministry of Education, Quality Education [in] General Education (SQA, available at: [www.sqa.at](http://www.sqa.at)) is explicitly mentioned by a career starter as very challenging:

The lessons themselves with the kids, that's actually quite good [...], but everything else in addition [...] feels overwhelming [...] SQA for example. And then the development plan [...] that is actually very challenging. [I 4, Career starter, yr. 1]

## 5.2. Importance of lesson studies in the phase of entering the profession

Young professionals confirm that lesson studies can offer teachers the opportunity to explore and reflect on their own lessons. They are supported in having the impetus to accompany the individual learning of pupils, in recognizing the differences between assumptions and reality, as well as in further developing their teaching.

If you teach every day, you eventually settle into an everyday routine and such concepts as lesson studies encourage you to think more about the lessons. Of course, one may think, how can I do that, I want to do justice to each student. Such concepts will make you realize that you need to study your teaching. [I 10, Career starter, yr. 2]

The lesson study team uses the different methodological competencies of individual team members when planning and implementing lesson studies. Young professionals can benefit from the experience of mentors and have the opportunity to learn about a variety of methodological

approaches. Even the more experienced teachers appreciate the new ideas and inspiration that the younger colleagues bring back from the training.

I see the greatest benefit in the exchange of ideas. Everyone contributed ideas. You can discover a lot of new methods and you learn by having a colleague with more work experience working with younger colleagues. [I 10, Career starter, yr. 2]

We both significantly developed our ideas. Everyone contributed ideas and then we agreed on one. That was pretty interesting. [M 3, Experienced colleague, yr. 1]

In order to adapt lessons to the individual needs of pupils, to create optimal learning opportunities for everyone, it is necessary to closely observe the children's learning and thought processes. Lesson studies offer precisely this opportunity, to specifically observe individual pupils.

I would say that you – or another person, whoever – just observe more closely [...]. It is rewarding, and you notice things you would not if you were standing in front of the class, because you do not have the children's perspective. [I 16, Career starter, yr. 2]

Teachers who know about the different learning situations and learning processes of their pupils can better meet today's demand for individualized teaching. Not having to be involved in a jointly scheduled classroom session or having to keep an eye on an entire class allows teachers to focus on the learning of a child and to see if, how and under what conditions learning is successful. The observed learning activities do not always correspond to the expectations or the assessments of the teachers recorded in the planning phase.

We were partly surprised, because we had partly misjudged the children. I've been

watching a kid who's otherwise struggled with maths, who finds it hard to keep up, solving all the problems on his own correctly and being totally interested in maths. So, we really misjudged that. [M 13, Experienced colleague, yr. 2]

Another positive aspect of lesson study is that young professionals see the opportunity to receive feedback on the effectiveness of their teaching from colleagues without being criticized.

If someone else helps me, I find that very good, because I do not perceive as much in class with that many children than if someone sits in on the lesson and gives me feedback about certain children. [M 7, Experienced colleague, yr. 1]

Lesson studies and lesson development in a team in which all participants meet as equals make it easier for young professionals to join the professional community in the school. In addition, they make a valuable contribution to the school's teaching development and team development.

I think that these studies have shown that both sides can benefit. Very consciously, I too can learn from young colleagues, and junior teachers may be able to profit from an experienced colleague. [M 5, Experienced colleague, yr. 1]

In summary, the experiences of the newcomers to lesson studies can be regarded as very positive. It is of significance that joint planning and exchange, as well as the various ideas that accompany them in order to achieve a goal, were perceived as beneficial. Competence enhancement happens above all through closely studying didactic aspects and specialist knowledge. The lesson study approach is seen as a way to learn from one another and share responsibility for teaching.

### 5.3. Supporting factors for the practice of lesson studies

In terms of structural framework conditions that support the implementation of lesson studies at the school level, the most frequently cited factor is time – both from the perspective of newly qualified teachers and more experienced teachers. Having enough time resources are of central importance in all phases of a lesson study cycle. Finding the time for planning together is considered the most challenging task.

So, I have to say, this project itself is a very good idea. But I have to say, it was very difficult for us because we were a very big group; we are three young professionals, an experienced teacher and a headmistress. And so, it was hard to make an appointment, that hardly ever worked! To be honest, it would have been easier for me to make an appointment with a teacher colleague teaching the same grade, but for a fourth grade teacher and my entry-level colleague, it is more difficult. And above all, it is really hard to have a meeting in the afternoon. I mean, we three boys, we are all from the outskirts of Graz so participating in those meetings or commuting back and forth has made it very difficult. Of course, you accept it, but it's all a matter of time. As someone starting a job, you already have so much to prepare and to manage all the organisation, so you just need to take a breath, it's just not possible, because it's just too much. [I 12, Career starter, yr. 2]

The implementation phase of lesson studies requires additional personnel resources and a school management that is committed to teaching research and cooperative teaching development, and enables the organisational development of such projects.

The headmistress always supported us. And she even took over teaching my class or my colleague's class in order to make our lesson studies possible at all. From this point of view, she plays an important role. [M 13, Experienced colleague, yr. 2]

The practice of lesson studies requires institutional anchoring but also cross-school cooperation in networks. Especially in schools with few teachers, the exchange with other schools becomes more importance.

Our schools are simply too small. We know each other too well and cannot learn enough from each other. [M 13, Experienced colleague, yr. 2]

The opportunity of obtaining advice from subject area experts at the university is considered particularly important during the joint planning phase.

Mr. E. [expert in a specific subject area] was always extremely cooperative, has always included and supported us. His presence and support during the preparation of lesson studies was great. [I 14, Career starter, yr. 2]

At a personal level, the social climate and willingness to cooperate are mentioned as beneficial factors by all. A climate of trust and the willingness to share knowledge, know-how and mutual learning are the prerequisites for executing lesson studies. Joint planning, implementation and reflection require respectful interaction and face-to-face communication.

Motivation is mentioned as another important personal factor. Terms such as a motivated leader, a motivated team, a motivated career starter, a motivated experienced colleague, a motivated lesson advisor are particularly common in the answers given in the written survey at the end of the second year of the project. Motivation and consistency are also mentioned as prerequisites for seeing lesson studies as a worthwhile ongoing activity. It is only possible to obtain insights into teaching effectiveness and the learning impact of the lessons from consistent and long-term observation and study.

In schools with few pupils and small teams, principals acting in double roles as

teachers and principals and the willingness to come up with creative solutions were mentioned several times as significant factors. In situations like this, staff resources must be carefully used and colleagues from neighbouring schools need to become involved to facilitate the implementation of lesson studies as a team. The inter-institutional and inter-school cooperation already mentioned in the case of structural factors is important in schools with very small teams.

## 6. Conclusions and limitations of the research

Based on the three central research questions of this paper, namely, a) what significance does subject-related teaching development have for newly qualified teachers as they start their career, b) what contribution do lesson studies make to the development of the subject-related teaching of newly qualified teachers as they start their career, c) which structural and personal factors support the practice of lesson studies, the following can be concluded:

The majority of young professionals interviewed in the context of this study rate themselves as adequately competent at the beginning of their career in the subject-focused didactic field and do not perceive the need for assistance in this areas as a priority. More challenging are time and class management, communication and interaction with parents or guardians, and development work in connection with school system reforms. This is also consistent with the results of related studies (Henecka & Lipowsky, 2002; Albisser, 2009; Martinuzzi, 2009; Holzinger, Kopp-Sixt, da Rocha & Völkl, 2015).

The question whether lesson studies can contribute to the subject-related expansion of competences in the initial phase of career entry can be answered positively based on the data collected in this study. By working

with the model of lesson studies, newly qualified teachers deepen their job-related knowledge as well as further develop their competences at the start of their career and work on further developing their teaching. They are encouraged to look at their lessons from the perspective of their pupils and to closely monitor and analyse their teaching. The positive effect of lesson studies on initial teacher education and in the induction phase is described in several studies, for instance from Lamb & Ko (2016) or Cajkler & Wood (2016). Based on effectiveness studies of professionalization programmes, Lipowsky (2017) sees lesson studies as an effective format for the continuing education of all teachers. Effective professionalization programmes must be close to the job, be connected to one's own teaching and open up opportunities for exchanges with colleagues and opportunities for joint development work and feedback (Lipowsky, 2017).

In relation to the third question on the structural and personal supporting factors for the practice of lesson studies, school leadership plays a central role. A clear stance and the support of staff is needed for the practice of lesson studies. At a personal level, a culture of trust and sharing of knowledge and skills are needed, as well as a willingness to cooperate and to network. If teamwork and professional learning communities (Newman, 1994; Bensen & Rolff, 2006) are successfully established at the schools and the necessary time and personnel resources are provided, collective learning takes place through joint planning, implementation, observation and reflection on the lessons. According to Dudley (2015, p. 18), lesson studies show a good cost-benefit ratio if opportunities are created to incorporate the obtained results into school practice, not only into one teacher's lesson but also among all faculty. What is more, the findings can also be presented and discussed at education conferences.

The extent to which lesson studies can be a specific model for the induction phase of newly qualified teachers at the start of their career, which is a very formative time, depends on the qualifications of mentors and their competences in the area of knowledge, actions and attitudes. A central prerequisite is the understanding that accompanying newly qualified teachers is simultaneously seen as a resource for personal development and collaboration in the school or school alliances, with the aim of enabling collective learning for more experienced and less experienced teachers through the process of planning, observing and analysing together (Dudley, 2015, p. 4).

It must be stated that the present study is limited because the results are based exclusively on the assessments of the persons involved and there is no empirical evidence available on the further development of teaching and an increase in learning effectiveness. Furthermore, it must be pointed out that this study was conducted during the run-up to the implementation of the induction phase and that therefore all persons involved decided to participate voluntarily. The mentors did not have any formal qualifications to fulfil their function. The extent to which lesson studies for career starters can represent a specific model for the induction phase will therefore depend on the orientation of the mentors' qualifications in terms of content and the associated acquisition of competences in the areas of knowledge, skills and attitude. In order to enable collective learning in intergenerational teams – represented by the lesson study teams in this project – it is necessary to understand that the support of young professionals is a resource for personal learning and the sharing of knowledge and competences. The relationship between mentor and career starter must be seen as a learning partnership, requiring cooperation characterised by mutual

respect (Holzinger et al., 2015, p.111). The traditional approach to mentoring as an advice-giver must be left behind (Cajkler & Wood, 2016)

Due to the above-mentioned limitations of the study, a follow-up project is indicated during the implementation of the induction phase, in which on the one hand, systematic surveys on the effects at the pupil level are planned, and on the other, experienced teachers who have already acted as mentors are invited to take on the role of mentors for lesson studies as part of the continuing education of teachers.

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