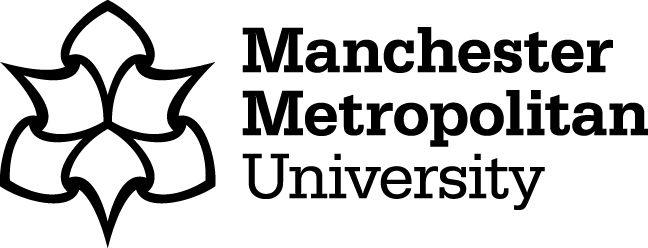
** EDUCATION SYMPOSIUM:**

**CREATING A WORLD CLASS TEACHING SYSTEM**

**Learning to teach in the University Schools Model at Manchester Metropolitan University**

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* 'Close up' challenges and opportunities with teacher preparation programmes
* Confidently different: The University Schools Model as an example of high quality teacher preparation
* How the University Schools Model support aspects of effective teacher preparation programmes

**'Close up' challenges and opportunities with TPP**

As suggested by other papers in this symposium (Hulme et al, 2018), issues around teacher preparation programmes (TPP) may be placed into three categories; *attracting* new people into the profession, *developing* those in or entering the profession, and *retaining* teachers in the classroom. As teacher educators we are situated 'close up' to the impact of policy decisions, offering a different perspective and requiring creative, research-informed approaches. Here we present an approach developed at Manchester Metropolitan University, dubbed the University Schools Model, that is impacting positively on the development and retention of student teachers despite the difficult recruitment context. The issues around recruitment of teachers are well-documented; new teacher recruitment figures have been below target for the last five years, and applications for the current cycle are down by 31% in comparison to last year (UCAS, 2018). The "growing sense of crisis" caused by the shortage has been recognised in the Public Accounts Committee report *Retaining and developing the teaching workforce* (2018), which cites increasing workload as a factor in discouraging applicants. Given that England is one of only eight countries in the OECD where upper-secondary school staff teach for over 800 hours a year (OECD, 2017), new entrants to the profession must be prepared for the demands of the classroom.

The shortage of specialist teachers in classrooms has a subsequent effect on teacher education, in that there is a paucity of suitable placements and support for students. As presented in other papers in this symposium (Burn at al 2018), the impact is not homogeneous across all groups and significant inequalities exist. As the Social Mobility Commision report points out "Areas with low attainment among secondary pupils on free school meals tend to have higher teacher turnover." (2017: 39). A report by the Gatsby Foundation (2018) considers poor recruitment of science teachers and suggests that schools in deprived areas or with high levels of low-attainment are particularly impacted by this shortage. Retention of science teachers is also particularly low, with 35% of new science teachers leaving the profession within 5 years (Allen and Sims, 2017). A lack of placements in these deprived areas means schools are not able to access the new ideas, university links, and recruitment potential that student teachers offer, further compounding the negative cycle of recruitment.

Bursaries have been introduced to tempt the 'best graduates' into teaching, ostensibly to offer an incentive to embrace the high workload, teach in disadvantaged schools, and remain within the profession. However, the large, front-loaded training bursaries in some subject areas create perverse incentives for students to qualify but not seek employment in schools afterwards; following a PGCE in a science subject, for example, a postgraduate taking a main-scale teaching post in a secondary school would see their monthly take-home income almost half in comparison to their training bursary (DfE, 2018). The introduction of early career payments for teachers of mathematics go some way rebalance the payment structure and encourage retention, but the benefits will not be seen immediately and are not available in all subject areas.

Issues around attracting, developing, and retaining teachers as outlined above have resulted in a specific set of problems for TPP providers, especially in STEM subjects;

1. **A lack of quality mentors**: Poor retention of teachers means that much experience is lost. Students placed in schools require support from an experienced subject mentor, and if this experience is not available then the student experience is poor.
2. **A shortage of placements**: Schools and teachers are under pressure to provide accountability measures and produce exam results. If the benefits of taking student teachers onboard are not clear, then schools will not offer places to TPP providers to place students required to complete the compulsory 120 days in schools.
3. **Poor links between theory and practice**: There is a gap between the theory discussed at Universities and the practice observed in secondary school (Allsopp et al, 2006),
4. **Weaker partnerships between schools and universities**: Whilst both are essential in the TPP, inputs are largely separate and communication limited.
5. **Increasing inequalities**: Disadvantaged schools increasingly struggle to recruit specialist teachers, meaning they are unable to provide placements and therefore are unable to access the benefits to recruitment and school improvement afforded by taking student teachers.

To address these issues, the mathematics education team at Manchester Metropolitan University developed the University Schools Model, which has since been employed by the science and modern foreign language education teams.

**Confidently different: The University Schools Model**

The University Schools Model (USM) was born out of two concurrent programmes; primary research and observation of TPP in Finland, and the Greater Manchester Challenge. As referenced in other papers presented in this symposium, von Hippel et al (2016) question how *confidently* we can single out individual teacher preparation programmes as different. The USM draws on a range of regional and international sources to produce a TPP that is not only distinct, but also addresses many of the issues outlined above.

The Greater Manchester Challenge ran from 2008-11, and as part of this project student teachers from Manchester Metropolitan University and the University of Manchester were placed in local schools towards the end of their PGCE and asked to develop creative materials, primarily in English, Mathematics and Science. With a focus on disadvantage and narrowing attainment gaps, specific pupil groups were targeted, and schools and universities sought to develop partnership working and to share effective practices, skills and expertise whilst pooling resources. Evaluations of the project were positive (Chapman and Butcher, 2010), with students relishing the grouped placements and the "opportunity to try out new strategies in a safe, encouraging environment and get feedback from a wide range of practitioners", whilst schools found that "results exceeded my expectations". Such a project repositions the benefit of TPP in school improvement; with an involvement across multiple schools and both the time and opportunity to engage with current research, student teachers and universities are uniquely placed to support school development.

The name "University Schools" was inspired by a visit to a teacher education university in Finland in 2010, where partnership schools are attached to the university building and are dedicated to the development of pedagogy. Here students, class teachers, and university tutors work collaboratively in classrooms, strengthening the relationship between the training school and the university, and therefore the relationship between the educational theory and classroom practice. As on-campus schools are difficult to found in the UK, we identified some schools that we wanted to work closely with and named them "University Schools" to make the collaboration in the education of student teachers explicit.

There has been much discussion over the last decade on the importance of partnerships between schools and universities in teacher education (Allsopp et al, 2006), something that can be seen strongly in the Finnish model of TPP. Finland’s teacher education focuses on the integration of theory and practice in schools and has strongly influenced the development of the USM. Teacher training in Finland is completed in specialist teacher training schools, where theory and practice are considered to be conceptually inseparable. Integration of theory with practice is seen as fundamental to promoting teacher autonomy and professionalism (Heikennen et al, 2011). Furthermore, the relationship between the university teacher and the training school teacher is considered crucial to teacher development, and both class teacher and university tutor are equally responsible for supervision, albeit from different, overlapping, perspectives. The university tutor observes lessons to ensure that the trainee is building their practice upon theory and can identify the theory that arises out of their practice in the classroom. The classroom teacher focuses on subject knowledge. Similar practices have also been developed in the United States, in ‘Professional Development (or practice) Schools’ (Bullough and Kauchak, 1997; Levine and Trachtman, 1997).

Broadly, the USM is such that:

* Student teachers are arranged in groups of three. Groups undertake both collaborative and individual teaching, including joint planning and team teaching a large portion of their timetable.
* Usually six students per subject are placed at each school, but this may be as few as three or as many as 15.
* For six trainees, a university tutor spends one whole day in the school every week, with an extra half day for each extra group of three trainees. Initially this was funded as a research project, but such has been its success that schools now pay for the university tutor’s.
* University staff contribute to wider aspects of school life and are often treated more as members of staff than familiar but occasional visitors. The tutor role involves supporting student teachers with planning, observations, and evaluation of lessons, as well as direct classroom support and working alongside the subject mentors to target intervention to ensure that students succeed.
* Currently two-thirds of students on the mathematics PGCE, all students on the BSc in Secondary Mathematics Education with QTS, and one-third of the PGCE science cohort are placed in USM placements

The concept of collaborative paired placements is not unique, and there has been extensive research into the benefits of this for teacher education (eg Kazim et al, 2014; Dang, 2013; Nokes et al, 2008; Sorensen, 2004; Bullough et al, 2003), and institutions including the University of Cumbria, University College Plymouth, the University of Bristol, and Oxford University have trialled collaborative placements as part of their PGCE courses. However, it is still the case that the most common practice in the UK has been to place a single student in a given subject area in a school to work alongside a single subject mentor (Sorensen, 2014), where the input from the HEI plays a minor role in the development of student teachers.

Hulme et al (2018, in this briefing pack) present a list of features of effective teacher development programmes, many of which are addressed by the USM.

**How the University Schools Model support aspects of effective teacher development programmes**

***Coherence****, a common, clear vision of good teaching grounded in an understanding of learning, permeates all coursework and clinical experiences.*

The mathematics education department at Manchester Metropolitan University has a clear shared vision of mathematics teaching that is securely grounded in research, with over 10 years working with the Freudenthal institute in Holland to develop pedagogies that teach mathematics in a context. This work has been published as “Realistic Mathematics Education” (RME) and “Making Sense of Mathematics” (MSM) (See Dickinson & Hough 2012; Dickinson et al 2011). During University sessions this pedagogy is shared with student teachers who are encouraged to consider aspects of this theory of learning when planning lessons during their teaching placements. The USM is such that the university is reliant on fewer school placements for student teachers, meaning that we can work closely with the 'university schools' to develop their understanding of RME/MSM, which in turn supports students in developing their research-led pedagogy. Due to the university tutor working alongside the teachers, mentors and student teachers throughout their placements, a clear vision of good teaching permeates sessions at university as well as the placements that they experience in partnership schools.

***Explicit strategies*** *that help students: (1) confront their own deep-seated beliefs and assumptions about learning and students; and (2) learn about the experiences of people different from themselves.*

At the start of their careers teachers may continue to define their practice based on their own experiences rather than developing personal ideas about successful teaching (Brown et al, 2014; Britzman, 2003). Effectiveness in teaching is judged through lessons being observed by those who come with their own set of beliefs and aspirations as referenced to current norms of practice. The teaching experience, therefore, has become less about developing pedagogy and more about ensuring that student teachers are complying to externally imposed teaching and assessment regimes regardless of individual pedagogical beliefs. The USM allows external standards to be met without compromising pedagogical development.

Throughout the year USM students teach collaboratively as a trio alongside individual lessons, which provides significant support through collaborative lesson planning and subsequent delivery. Collaborative practice in a 'traditional' model of teacher education is in the form of the trainee teacher working as an 'apprentice' with the class teacher or a subject mentor. This can be argued to be ‘cooperative’ rather than ‘collaborative’ learning (Peters and Armstrong, 1998). For learning to be truly collaborative there needs to be an equality of power in the relationships, as ‘an unequal distribution of power and authority in a group would profoundly influence the direction of decision making and knowledge construction’ (Peters and Armstrong, 1998: 78). Student teachers may feel obliged to incorporate the advice and ideas from ‘expert’ teachers and mentors in school into their own teaching and therefore are merely cooperating with the ideas that have been shared rather than being co-constructors of them. Another issue when working with established teachers is that what started an explicit routine in teachers' early experience has become a tacit routine over time, making it difficult to articulate to student teachers (Eraut, 2007). This is in contrast to teaching with peers where these routines are established in unison and are not yet instinctive, and can therefore be evaluated and re-assessed together. This shift in working and collaborating with peers opposed to working and cooperating with those more experienced is the primary premise of the university schools model of teacher education.

Meirink et al (2007: 147) discuss collaboration as exchanging ideas, conceptions, opinions, knowledge and experiences to make a change in cognition, and that ‘people can generate or create things which could not have been generated or created by one individual’. Collaboration goes beyond working ‘with’ another person, and in a school setting can be defined as teachers working together to ‘develop reciprocal professional learning’ (Burley and Pomphrey, 2011: 48). For it to be collaborative practice, although each member of the group expresses their opinions and ideas, ‘no individual has a monopoly on what is going on’ (Peters and Armstrong 1998: 77) -- not an easy balance to maintain as the student teachers develop their identity. The university tutor, during their weekly visits, has a significant role to play in ensuring the balance of equality and ideas is truly collaborative.

There has been significant research recently on the roles of collaborative practice (Lofthouse and Thomas, 2017; Cajkler et al, 2014; Eraut, 2007; Meirink et al, 2007) and the effect this has on supporting the developing professional. The study by Cajkler et al (2014: 521) found that there were benefits to planning lessons collaboratively, such that ‘collaborative planning led them to be more courageous and give greater responsibility to students to manage their own learning’. This study also suggests that collaboration led to a greater willingness for pedagogical risk taking and ‘opportunities for participants to develop individual expertise leading to greater confidence to make changes… and address learning challenges with creative and engaging approaches’ (Cajkler et al, 2014: 526), concluding that working collaboratively allowed for a deeper study of pedagogy.

This deeper study has been noticed in schools, with one student teacher commenting that "the ideas that come out of it are a lot richer and the combined strengths are greater", and a mentor who found that "The lessons are focusing on understanding rather than procedural algorithms, and their ability to discuss pedagogy and critically reflect on their own (and each other's) lessons is excellent.".

Teachers in their developing years take on a challenging role within the first weeks on teaching placement and can struggle to survive in extremely crowded and demanding environments (Eraut, 2007). Their survival depends on them being able to reduce their cognitive load by prioritisation and routinisation and therefore may not focus on the pedagogical issues within their teaching, which also allows more thinking time for interaction within the pupils (Eraut, 2007). However, with collaborative teaching there is a sharing of responsibilities within the classroom and therefore more space for reflection allowing for routinisation to be less of a necessity in the first few weeks, but developed effectively with evaluation over time. In Sorensen (2014) peer placements promote more effective collaborative practices, which is the premise for the university schools model of TPP.

***An inquiry approach that connects theory and practice,*** *including regular use of case methods, analyses of teaching, and learning, and teacher research applying learning to real problems of practice and developing teachers as reflective practitioners.*

Research shows that there is a gap between the theory discussed at Universities and the practice observed in secondary school (Allsopp et al, 2006). Nolan (2012) noted that in some cases the subject mentors and other staff in school encouraged student teachers to adopt an unduly cynical approach to teaching. Whilst on teaching practice the student teacher is isolated from the support and advice of the university tutor and so too often pedagogy is sacrificed to ensure compliance, diminishing the influence that the university lecturer has on developing student teachers' pedagogical knowledge; the once ‘inventive and imaginative practice enthused over at the university becomes reductionist process driven teaching’ (Cockerham and Timlin, 2014: 68). Elliot (1991: 45) goes so far as suggesting that teachers supporting the student teachers ‘often feel threatened by the theory'.

The USM allows university tutors to work *alongside* the teachers and the student teachers every week, and provides opportunity to support the application of the theory to practice in a more cohesive manner. Integration of theory with practice is fundamental to promoting teacher autonomy and professionalism (Heikennen et al, 2011). This model of teacher education allows a relationship between the university tutor and the teachers in the school to be developed to try to encourage practice based on theory, which may have been previously shied away from. The collaborative teaching during these placements is paramount in developing innovative lessons as well as encouraging the student teachers to become more reflective practitioners. This is reflected by mentors, one of whom commented that "To be honest it’s having you [the university tutor] in as well that makes it work so well. I would definitely have been too hard on them without your support and guidance. It’s great being able to do joint observations and discuss what I’m watching".

However, working in a group with differing pedagogies and priorities can lead to tensions and emotions that student teachers find hard to navigate. The university tutor's role is to mediate these unavoidable tensions, and to facilitate the discussion; a differing of opinions is crucial to start the debate about perceptions of what makes a “good” lesson, and therefore start to identify beliefs about teaching. (Meirink et al, 2007)

***Strong school-university partnerships*** *that develop common knowledge and shared beliefs among school-and university-based faculty, allowing candidates to learn to teach in professional communities modelling state-of-the-art practice for diverse learners and collegial learning for adults.*

The USM employs a more equal partnership between the university and the partnership schools. This involves doing joint observations with class teachers, heads of department, subject mentors and professional mentors, and allows stronger student teachers to be identified early and to ensure that measures are in place to allow them to meet the 'outstanding' criteria for the placement. It also allows early identity of student teachers who are struggling to meet the standards and for the university and the school to work together to target intervention and support. This means a close relationship with the departments involved and a strong professional trust to be developed. This has increased the opportunities for the university tutors to offer support in the professional development of teachers in the department and to support departments in their curriculum development.

Increasingly university staff contribute to CPD within the school, emphasising the benefits of this partnership model. Examples of this have included running sessions on giving feedback after observations, and advising on small-scale action research projects in schools. The approach here is not one of 'ivory tower' academics lecturing experienced teachers, but more in supporting the development of a research-informed culture to drive school improvement. Further subject-specific examples can be found in Smith and Smith (2018), in this briefing pack.

The development of a strong partnership between the university and the school also has benefits for the university. Mentors from our university schools have been eager to come into university and deliver sessions to students. Having sessions delivered by school-based professionals, who are seen as 'up-to date' with the current changes in education, ensures that the information our student teachers are receiving is the most current and relevant for them in their careers. Mentors also support with the interview process for the PGCE and BSc courses, ensuring a moderation of the standards of student teacher we accept onto our courses. This is significant for the school mentors to support as these student teachers are likely to be placed in their school for part of their school experience.

***Assessment based on professional standards*** *that evaluates teaching through demonstration of critical skills and abilities using performance assessments and portfolios that support the development of ‘adaptive expertise’.*

Whilst many student teachers display excellent practice by the end of their placement, inevitably some find successfully completing the course to be a little difficult. The current Teachers Standards (DfE, 2013) are inferior to previous iterations (TDA, 2007) in that there is no differentiation between those starting their career and those who have been teaching for many years or occupy leadership roles, increasing the pressure on student teachers.

Ensuring a common understanding of “quality” in TPP presents difficulties despite the existence of set of Teachers 'Standards' (DfE, 2013). Informally, what constitutes an “outstanding” lesson may be dependent on the school context, so that an “outstanding” lesson in one school may be judged as “requiring improvement” in another. Mentors supporting student teachers in “challenging” schools may deem simply surviving a Year 9 lesson an outstanding achievement. Consequently, university tutors’ infrequent visits are inadequate to monitor and support a shared sense of quality across multiple schools in a university partnership. The consequence of this can be novice teachers released into teaching wrongly graded and lacking understanding of their true capacity and potential for development.

The University schools model ensures University tutors work alongside schools in different contexts to ensure parity in its “grading” of student teachers in their training year. Although there is a need to show that the teaching standards are being met, the weekly visit by the university tutor means that these are agreed throughout the placement and are not reliant on the production of evidence at the end of the course. The university tutor works alongside the professional mentor and subject mentor to agree on the successful completion of the course ensuring an acceptable standard of teaching has been met, regardless of the school context. A significant benefit of the University school model is that a more holistic view of the student teachers teaching experience can be discussed, rather than merely ‘ticking off standards’. The university tutor has a greater knowledge of the strengths and targets of each of the student teachers they support than in their traditional role, which allows them to offer advice when student teachers are applying for their first teaching position. This can be a significant for the retention of good/outstanding teacher in the profession.

**Looking forward**

The popularity of the USM is reflected by the fact that new schools have joined the model each year, and we now have a large pool of schools available for USM placements. We want to continue to expand in this way, so that we can ensure quality whilst matching student teachers with schools. The model has also been expanded to include other subjects areas in the university, giving added benefits of having student teachers specializing in different disciplines supporting each other.

**References**

Allen, R. and Sims, S. (2017) "Improving Science Teacher Retention: do National STEM Learning Network professional development courses keep science teachers in the classroom?" Wellcome Trust/Education Datalab <https://wellcome.ac.uk/sites/default/files/science-teacher-retention.pdf>

Allsopp, D.H., DeMarie, D., Alvarez-McHatton, P. & Doone, E. (2006). "Bridging the Gap between Theory and Practice: Connecting Courses with Field Experiences", *Teacher Education Quarterly,* vol. 33, no. 1, pp. 19-35.

Baeten, M. & Simons, M. (2014), "Student teachers' team teaching: Models, effects, and conditions for implementation", *Teaching and Teacher Education,* vol. 41, pp. 92-110.

Brown, T. Rowley, H. Smith, K. (2014) "Rethinking Research in Teacher Education". British journal of Education Studies, vol.62, no. 3, pp. 281-296

Britzman, D.P. & ProQuest (Firm) (2003), *Practice makes practice: a critical study of learning to teach*, State University of New York Press, Albany.

Bullough, R.V. & Kauchak, D. (1997) Partnerships between higher education and secondary schools: Some problems. *Journal of Education for Teaching,* 23(3), 215-233.

Bullough, R.V., Young, J., Erickson, L., Birrell, J.R., Clark, D.C., Egan, M.W., Berrie, C.F., Hales, V. & Smith, G. (2002), "Rethinking Field Experience: Partnership Teaching Versus Single-Placement Teaching", *Journal of Teacher Education,* vol. 53, no. 1, pp. 68-80.

Bullough, R.V., Young, J., Birrell, J.R., Cecil Clark, D., Winston Egan, M., Erickson, L., Frankovich, M., Brunetti, J. & Welling, M. (2003), "Teaching with a peer: a comparison of two models of student teaching", *Teaching and Teacher Education,* vol. 19, no. 1, pp. 57-73.

Burley, S. & Pomphrey, C. (2011), *Mentoring and coaching in schools: professional learning through collaborative inquiry,* 1st edn, Routledge, New York;London;.

Cajkler, W., Wood, P., Norton, J. & Pedder, D. (2014), "Lesson study as a vehicle for collaborative teacher learning in a secondary school", *Professional Development in Education,* vol. 40, no. 4, pp. 511-529

Chapman, C. and Butcher, V. (2010) "Evaluation report: Greater Manchester Challenge (GMC)". Manchester Metropolitan University/University of Manchester Impact Report 2

Cockerham, F. and Timlin, R. (2014) ‘University Schools: A Collaborative Approach to ITT in Secondary Mathematics’, in the 8th British Congress of Mathematics Education. Nottingham, pp. 67–74.

Dang, T.K.A. (2013), "Identity in activity: Examining teacher professional identity formation in the paired-placement of student teachers", *Teaching and Teacher Education,* vol. 30, no. 1, pp. 47-59.

Darling-Hammond, L. (1994). *Professional development schools: Schools for developing a profession.* New York: Teacher’s College Press.

Department for Education – DfE (2018) "Get Into Teaching: Bursaries and Funding" <https://getintoteaching.education.gov.uk/funding-and-salary/overview>

Dickinson, P. Hough, S. Searle, J. Barmby, P. (2011) "Evaluating the impact of a Realistic Mathematics Education project in secondary schools". British Society for Research into Learning Mathematics 31(3).

Dickinson, P. Hough,S (2012) Using Realistic Maths Education in a UK classroom. Hodder Education. <https://www.hoddereducation.co.uk/media/Documents/Maths/Using-Realistic-Maths-Education-in-UK-classrooms.pdf>

Elliot, J. (1991) *Action research for educational change.* Buckingham: Open University Press.

Eraut, M. (2007), "Learning from other people in the workplace", *Oxford Review of Education,* vol. 33, no. 4, pp. 403-422

Gatsby Foundation (2018) "Specialist Science Teacher Recruitment 2016-2017" <http://www.gatsby.org.uk/uploads/education/specialist-science-teacher-recruitment-2016-2017-310118.pdf>

Heikennen, H., Tynjala, P. & Kiviniemi, U. (2011) Interactive Pedagogy in Practicum. In Mattsson, M., Eilertsen, T.V. & Rorrison, D. (Eds.) *A Practicum Turn in Teacher Education.* Rotterdam: Sense Publishers.

Kazim, R. Mahomed, A. Moloney, M. Morrison, L. (2014) "Developing a 'dynamic' and collaborative pedagogy for postgraduate certificate (PGCE) secondary mathematics students. Teacher Education Advancement Network Journal (TEAN), 6(3) pp. 28-36

Levine, M., and R. Trachtman. (1997). *Making professional development schools work: Pollitics, practices and policy.* New York: Teachers College Press.

Lofthouse, R., Flanagan, J. & Wigley, B. (2016), "A new model of collaborative action research; theorising from inter-professional practice development", *Educational Action Research,* vol. 24, no. 4, pp. 519-534

Lofthouse, R. & Thomas, U. (2017) "Concerning collaboration: teachers' perspectives on working in partnerships to develop teaching practices", *Professional Development in Education,* vol. 43, no. 1, pp. 36-56.

Manouchehri, A. (2002). "Developing teacher knowledge through peer discourse." *Teacher and Teacher Education,* 18(6), 715-737.

McCotter, S.S. (2001), "Collaborative groups as professional development", *Teaching and Teacher Education,* vol. 17, no. 6, pp. 685-704

Meirink, J.A., Meijer, P.C. & Verloop, N. (2007), "A closer look at teachers' individual learning in collaborative settings", *Teachers and Teaching,* vol. 13, no. 2, pp. 145-164.

Nokes, J.D., Bullough, R.V., Egan, W.M., Birrell, J.R. & Merrell Hansen, J. (2008), "The paired-placement of student teachers: An alternative to traditional placements in secondary schools", *Teaching and Teacher Education,* vol. 24, no. 8, pp. 2168-2177.

Nolan, K. (2012) Dispositions in the field: viewing mathematics teacher education through the lens of Bourdieu‟s social field theory. *Educational Studies in Mathematics,* 80(1–2), 201–216.

OECD (2017) "Education at a Glance 2017: OECD Indicators" <http://dx.doi.org/10.1787/eag-2017-en>

Peters, J.M. & Armstrong, J.L. (1998), "Collaborative Learning: People Laboring Together to Construct Knowledge", *New Directions for Adult and Continuing Education,* vol. 1998, no. 79, pp. 75-85.

Ross, J. A. (1995). Professional development schools: Prospects for institutionalization. *Teaching and Teacher Education*, 11 (2): 195-201.

Sorensen, P. (2004), "Learning to Teach Collaboratively: The Use of Subject Pairs in the School Practicum", *Canadian Journal of Educational Administration and Policy,* , no. 32.

Sorensen, P. (2014), "Collaboration, dialogue and expansive learning: The use of paired and multiple placements in the school practicum", *TEACHING AND TEACHER EDUCATION,* vol. 44, pp. 128-137

Teacher Development Agency – TDA (2007) "Professional Standards for Teachers: Why sit still in your career?" TOA313/06.07/COL. London.

UCAS (2018) "UTT monthly statistics: UCAS Teacher Training applications at Monday 15 January 2018." <https://www.ucas.com/corporate/data-and-analysis/ucas-teacher-training-statistical-releases>

von Hippel, P.T., Bellows, L., Osborne, C., Lincove, J.A. and Mills, N., (2016). "Teacher quality differences between teacher preparation programs: How big? How reliable? Which programs are different?". *Economics of Education Review*, 53, pp.31-45.

Wilkinson, C., Pennington, T.R., Whiting, E., Newberry, M. & Feinauer, E. (2014), "Triad relationships and member satisfaction with paired placement of student teachers", *Australian Journal of Teacher Education (Online),* vol. 39, no. 8, pp. 162-184.

Wilson, P. Bolster, A. (2011) "New Models of teacher education: collaborative paired placements". <http://dera.ioe.ac.uk/14862/7/8503_Redacted.pdf>

Zeichner, K. & Tabachnick, B.R. (1981) Are the effects of university teacher education washed out by school experiences? *Journal of Teacher Education,* 32, 7-11.