‘Teacher Training Incentives’ in Wales (International Policy Context)

Contract Number: ITER002

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May 24th- 2019

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Appendix A

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Acknowledgements

We would like to acknowledge and thank the following international experts who provided feedback via the on-line survey and specifically on the cases:

Professor Stephen Dinham, University of Melbourne, Australia

Dr Ann Mcintyre, New South Wales Education Department, Australia

Lila Mularczyk, Director of Professional Learning, Gonski Institute, University of New South Wales, Australia

Professor Sam Twiselton, Sheffield Hallam University, England.

Professor Gerry Macruairc, University of Galway, Ireland

Professor Kim Schildkamp University of Twente, Netherlands

Professor Tony Gallagher, Queens University Belfast, Northern Ireland.

Professor Morag Redford, University of Highlands and Islands, Scotland

Professor Christopher Chapman, University of Glasgow, Scotland

Professor Pak Tee, National Institute of Education, Singapore

Dr Cheryl Forbes, Director of Teacher Education at University of California San Diego, USA

1.0 Executive Summary

This executive summary outlines the main findings from this international review of the literature that focused upon incentives into teacher training. The following outlines the main findings:

- Many countries are facing significant teacher shortages and are seeking solutions, largely but not exclusively in the form of incentives into teacher training;
- The central reported cause of teacher recruitment and retention issues, in various countries, is excessive workload, pressures of external accountability and long working hours;
- The administrative burden on teachers, in some education systems, remains considerable (e.g. Australia, England and USA) and is prompting teachers to leave the profession or to consider other career options;
- For some subject areas (e.g. maths, physics, IT) salary remains a significant barrier to entry, as other professional routes pay significantly more;
- The perceived low status of teaching and the absence of clear career pathways are cited as key reasons for not joining the teaching profession;
- Decisions to enter teaching has multiple influences including:

  a) structural considerations- increases in class sizes or pupil: teacher ratios, changes in the curriculum and reduced school funding

  b) financial considerations - salary and remuneration levels, ease of getting a job, promotion prospects

c) professional considerations -status of the profession, opportunities to upskill (to a Masters or PhD), robust support mechanisms and guaranteed career pathways.

d) personal considerations -location, family considerations, making a difference to young people and holidays.

- Bursaries for a career change into teaching, particularly in the shortage areas, is proving to be effective in some countries (Scotland; USA)
- In certain countries (e.g. Singapore, Finland) there are strong cultural norms and influences that contribute to teacher preparation programmes being over-subscribed;
- An expansion of the number of routes into teacher education is encouraging more participants into initial teacher education courses in some countries (e.g. Australia) but is causing confusion in others (e.g. England);
- The expansion of more flexible routes into teacher education, greater variety in the modes of study (i.e. blended learning, distance learning), clear career pathways, and accredited professional learning opportunities are positive and powerful incentives into teaching.

2.0 Recommendations

This international review has explored the contemporary academic and policy literature concerning incentives into teacher training. It has also generated six country case studies that provide detailed insights into the way in which the selected education systems are responding to teacher supply challenges.

Based on the evidence collected and represented in this report, the following recommendations and observations are offered in relation to Wales:

- A contemporary review of teachers' workload would be helpful to ascertain how far this is a real or perceived barrier to entry into the profession;
- Expanding the routes into teaching and offering more flexibility around the programme delivery (e.g. blended learning, on-line learning, distance learning, part time study) is one way to incentivise improved entry into ITE programmes;
- Greater collaboration between University providers to co-deliver new models of initial teacher education that draw upon their respective strengths and expertise, particularly in the shortage subject areas, could increase supply;
- A review of the impact of bursaries on the recruitment of teachers should be undertaken and specific bursaries aimed at a career change into teaching should be explored;

- Financial compensation in the form of loan forgiveness and scholarships are effective incentives into teacher education (e.g. USA), especially where they are large enough to offset the cost of training.
- Teacher residencies where trainees work alongside experienced teachers are worth examining as a way of getting greater diversity in the workforce;
- Bespoke, high quality mentoring and coaching opportunities have a positive impact on student teachers and their subsequent practice therefore, current provision should be reviewed, and a national mentoring/coaching programme considered;
- A clear progression pathway for teachers from the induction year onwards with defined professional learning entitlements (including leadership options) would be a strong incentive into teaching;
- A National Accreditation Framework for professional learning from initial teacher education onwards (that is fully transferable across all HEIs) would afford prospective teachers a clear professional pathway and additional accreditation options. This is a strong incentive in other countries (e.g. Scotland);
- A Masters qualification, as the standard for all teachers encompassing various professional learning routes and portfolios is proving to be a strong incentive to enter and to remain within the profession in other countries (e.g. Scotland, Finland, Netherlands; Ireland);
- Short sabbaticals are potent incentives to enter the profession along with the provision of professional learning opportunities (internships) in other schools;
- Job-sharing opportunities and flexible working arrangements could be offered to those entering the profession as an incentive;

- A clear leadership pathway from initial teacher education through to Headship possibly provided and endorsed by National Academy of Educational Leadership, (NAEL) would be an incentive for those interested specifically in a leadership roles or positions;
- More opportunities to formally recognise and reward teachers should be explored at local and national to raise the profile of the profession (e.g. Singapore).

3.0 THE STUDY

3.1 A steady increase in the numbers of pupils in both primary and secondary schools across England and Wales has prompted concern over the supply of teachers in both countries. (Statistics for Wales, 2018b; Department for Education (DfE), 2018c). The pupil teacher ratio in Wales has increased from 18.2 in January 2014 to 18.9 in January 2018 (Statistics for Wales, 2018b). In England, the pupil teacher ratio was 17.9 in January 2014, increasing to 18.7 in 2017 (Foster, 2018). The growth in pupil numbers have important implications for the recruitment of teachers to the profession (Cluett, 2019).

3.2 In England there was an increase of 1,145 entrants into initial teacher training between 2016/17 and 2017/18 which brought the total number of those training to be teachers to 27,895 (DfE, 2017d). 22% of these newly qualified teachers in England, however, left the state sector less than two years later (Foster, 2018).

3.3 In Wales, 545 students enrolled into programmes of secondary initial teacher education against a target number of 871. In contrast, the number of new primary school trainees was 97% of the target of 750 students (Statistics for Wales, 2018a). Overall, the number of full time equivalent qualified teachers has decreased across the United Kingdom between 2015 and 2017 (DfE, 2017c).

3.4 The quality of teaching is by far the most important within-school determinant of a pupils' educational attainment and educational success. A substantial corpus of research shows that pupils make less progress when they have a teacher that does not have a formal teaching

qualification; is less experienced; is without a degree in the relevant subject; and when teacher turnover at their school is high (Social Market Foundation, 2017).

3.5 Despite the central importance of teachers, the issues and challenges involved in the recruitment, retention and distribution of teachers tend to not be at the epicentre of many contemporary policy debates. The supply and quality of teachers entering the profession, however, is a fundamental driver of improved educational attainment and achievement.

3.6. In the most effective education systems, as defined by PISA, there are robust processes in place to ensure that the system is recruiting a very able teaching force (e.g. Singapore, Finland). Such systems have supply-and-demand policies that prevent shortages or surpluses. They ensure that the education system is producing the teachers it needs and that new graduates are going into schools that need them most. These systems also have clear incentives and inducements for entry into teacher education programmes which reinforce that teaching is a high-status profession (i.e. Singapore case).

3.7 Within England and Wales, a free market system allocates teachers to schools. In other countries, there are competitive examinations and a candidate list. European countries, including France, Spain, Portugal and Italy, hold exams, typically open to those awarded a teaching qualification, and the organisers allocate posts, often in conjunction with the schools' administration that are strictly regulated.

3.8 In Germany, Austria, Cyprus and parts of Belgium, administrators at a national or local level hold a list of qualified applicants, and a vacancy is offered to the top ranked applicant. 'The ranking typically depends mainly on the date of application, but points may be awarded

for criteria such as further qualifications, completion of national service, or family circumstances'[1]. Refusal of a post may send an applicant to the bottom of the list. The status of teachers as civil servants in Singapore and many other Asian countries means that their status, salary and career pathways are very favourable unlike teachers in other counties.

3.9 Evidence from this review, however, shows that vocation is a strong factor influencing entry to the teaching profession. In some cases, this is expressed as a general desire to work with children and influence their development. In others, this vocational impulse is directed more precisely at supporting those young people that are most disadvantaged (Social Market Foundation, 2017).

3.10 Other contemporary research studies have also explored the various motivations for entering teaching (e.g. LKMCO 2015, Chiong, Menzies & Parameshwaran, 2017 and Heinz, 2015). The resulting evidence outlines three categories of motivation into teaching i.e. intrinsic, extrinsic and altruistic motivation.

3.11 Intrinsic motivation is reflected in the fact that teaching is viewed to be internally rewarding and interesting. Extrinsic motivation includes factors such as salary, number of holidays and job security. Altruistic motivations revolve around a moral purpose and making a difference to pupils' lives.

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[1] https://www.ippr.org/files/uploadedFiles/research/projects/Education/Choice%20and%20Equity%20in%20Teacher%20Supply%20-%20M%20Johnson.pdf P4

3.12 An international review across 23 countries found intrinsic and altruistic motivations to be the most influential drivers in choosing to become a teacher (Heinz, 2015). Other research has similarly concluded that intrinsic and altruistic motivation heavily influences decisions to become a teacher and to stay in the profession (LKMCO, 2015; Manuel & Hughes, 2006).

3.13 The most frequently cited motivation to become a teacher focused on subject interest and working with young people (Chiong, Menzies & Parameshwaran, 2017). Supporting learners and seeing them progress are also reasons why teaching is viewed as a highly rewarding profession (Education Workforce Council, 2017).

3.14 One of the main reasons that teachers are leaving the profession, however, a great deal of evidence would suggest is excessive workload (National Education Union, 2018; Education Support Partnership, 2017; Cymru NASUWT The Teachers' Union, 2018; NASUWT The Teachers' Union, 2017). For example, the Education Support Partnership commissioned a survey, undertaken by YouGov, to explore the mental health and wellbeing of education professionals throughout the UK. 1,250 education professionals from across the sector responded to the survey from a wide range of job roles located in schools and further and higher education institutions. The largest proportion of respondents were female teachers located in the secondary phase of education (Education Support Partnership 2017). This research (2017) found that 75% of education professionals report that they experience behavioural, psychological or physical symptoms relating to their job. Findings show that 79% and 85% of teachers in England and Wales respectively, stated that their job negatively impacted upon their wellbeing and mental health (NASUWT The Teachers' Union, 2017; NASUWT Cymru The Teachers' Union, 2017). Similarly surveys conducted by NASUWT The

Teachers' Union (2017) and NASUWT Cymru The Teachers Union (2017) involving 11,000 and 800 respondents respectively revealed that 79% of teacher in England and 85% of teachers in Wales stated that their job negatively impacted upon their wellbeing and mental health.

3.15 Disruptive pupil behaviour is also a significant factor affecting recruitment and retention rates within teaching. Two fifths of teachers in Wales and three fifths of teachers in England state that there are behavioural problems in their school and that this is a main reason why teachers are leaving (NASUWT The Teachers' Union, 2017; NASUWT Cymru The Teachers' Union, 2018). A survey conducted by Williams (2018) exploring teachers, pupils and parents' experiences of low-level disruptive behaviour in secondary schools found that, of the 743 teachers who completed the survey, 72% reported that they know other teachers who have left the profession because of pupils' behavioural problems. Williams (2018) also suggests that 72% of teachers know other teachers who have left the profession because of pupils' behavioural problems. The Department of Education (2017a) acknowledges that pupils' poor behaviour is one of the main reasons why teachers are leaving the profession in England.

3.16 Other research studies that have focused on teacher recruitment and retention noted that feeling undervalued is an important contributing factor when considering leaving the profession. In one study, 65% of teachers said that they felt that their profession was undervalued (OECD, 2014). The low status of teaching is also an influential factor for those who choose not to enter teaching (DfE, 2018a).

3.17 The School Teachers' Review body (STRB, 2018) reported that an increasing pay gap between teaching and other graduate professions is affecting teacher recruitment and

retention in England and Wales. Other evidence points to the fact that most teachers who leave the workforce have a reduction in salary by around ten percent (NFER, 2015). Factors other than salary, therefore, would seem to be powerful determinants in decisions to enter or to leave the profession.

3.18 To tackle the issue of retention in the UK government has accepted the recommendation (STRB, 2018) to increase a regular teachers' salary by 3.5%. There will also be a 2% rise for teachers on the upper pay scale and a 1.5% pay increase for leadership staff. These pay rises are currently being implemented across England and Wales. (DfE, 2018d, STRB, 2018).

3.19 An investigation into the impact of teacher turnover on students' achievement over a two-year period, before crucial exams such as GCSEs, concluded that students in their final year of secondary school had lower scores in their final assessments when there was higher teacher turnover. An increase in teacher turnover in schools has a negative impact on student achievement which makes the twin issues of teacher recruitment and retention even more critical to address (Social Market Foundation, 2017).

3.20 In terms of incentivisation into teaching, Foster (2018) has recently analysed how incentives impact upon teacher recruitment and retention in England. This report highlights the limitations of financial incentives, such as bursaries, to increase the supply side of teaching. Similarly, Beaufort Research and the National Foundation for Educational Research (2019) conducted a recent study into the attractiveness of teaching and the retention of teachers in Wales. This research found mixed evidence for the positive impact of incentives on teacher recruitment or retention. They note that:

"financial incentives to enter teaching were a helpful bonus for some […] there is potential for this to be regarded as unfair. For example, incentives that depended on the degree attained by a student were sometimes queried on the grounds that degree attainment was not necessarily a sign of a good teacher" (ibid. p.3).

It calls for further research to investigate the implications of incentives into teaching in Wales and an assessment of their potential effectiveness.

3.21 This current study has explored incentives into teaching through a review of the international academic and policy literature. It has examined the incentives used to entice graduates into the teaching profession in different countries. Where available, it has looked at the evidence of the impact of certain incentives into teaching. In summary, the research project considered the following:

a) Direct incentives to engage students in initial teacher education;
b) Differences in remuneration and conditions between systems;
c) Cultural drivers such as the relative value of the role of teachers in society.

3.22 The purpose of this review is to provide evidence about the incentivisation approaches that are being deployed, internationally, to encourage a better supply of graduates into the profession.

The next section of this report outlines the review methodology and the development of the six case studies.

4.0 RESEARCH METHODOLOGY

4.1 A scoping review of the international literature was undertaken in order to map out the contemporary evidence base on incentivisation into teaching. The key policies, initiatives and strategies deployed, by various countries, to incentivise entry into the teaching profession since 2014 were explored.

4.2 Initially, an electronic search of the academic literature was undertaken which involved the review of key databases: EBSCOhost (BEI, ERIC), SCOPUS and the Web of Science. In addition, ResearchGate and OECD publications were also accessed to provide supplementary supporting material. The keywords 'Teacher Incentivisation' 'Incentivisation for Teaching' 'Teaching Incentives' 'Teacher Shortages' and 'Teacher Recruitment' were used to search the various data-bases.

4.3 A search of Swansea University's library catalogue was also completed to check that nothing had been missed. This search also sought out policy documents, working papers, conference papers etc. in different countries that were not indexed or abstracted in the academic data-bases. Google Scholar was used to identify any published material not already captured through the search of the data-bases.

4.4 OECD country reports were identified as well as policy information from Governments or specialist agencies dealing with teacher supply and incentivisation.

4.5 Google was used to identify any relevant grey literature such as blogs, commentaries, thought pieces etc. of relevance that would help to consolidate or extend the evidence identified through the more reliable sources.

4.6 In terms of the academic literature, the search terms were set to all fields (title, abstract and keywords, etc.). The main aim of this search of the academic literature was to map the international empirical base on teacher incentivisation. The data retrieval and analysis process involved the following stages (1) Setting Keywords (2) Selecting databases (3) Defining search criteria (4) Analysis framework (5) Extracting information from the articles. (6) Sorting and grouping the literature by country (Appendix A).

4.7 The following search criteria were set as follows:

- Date range: January 2014- March 2019
- Source: Journal articles
- Language: English

The table below shows the number of extracted articles that initially met the search criteria

Database name	Total number of hits	Identified articles
EBSCOhost (BEI, ERIC)	431	75
Scopus	197	25
Web of Science	45	20
Research Gate	54	40
Total	727	160

4.8 The 727 articles were all double-checked for direct relevance and all duplicate articles were removed. The final number of retrieved and downloaded articles was 160 which were then filtered again and checked for appropriateness with the topic. In total, 93 articles were included in the final list of international literature (See Appendix A). Within the retrieved articles there are 4 (N/A) that either do not specify a country or included a range of countries.

4.9 Given the variability and variety of this academic literature that touched either centrally or partially on topic of incentivisation into teaching, an article was only retained in the review if it met four key inclusion criteria:

1. It was from a reliable source i.e. government website, academic journal, reputable media outlet;
2. The language was English;
3. The output genuinely and predominantly concerned itself with incentivisation into teaching;
4. It was published post January 2014.

4.10 The review found that many of the academic journal articles only dealt with incentivisation approaches marginally or as a sub-theme or as part of a wider discourse. The articles that did not add significantly to the knowledge base on this topic were excluded.

4.11 Inter-team checks were made as more documents were found to ensure both the quality and appropriateness of the outputs included in the academic review. All references were recorded using EndNote.

4.12 From this scoping study some broad themes emerged from the international literature and these are reflected in the executive summary, recommendations, commentary and conclusion. From the literature it was also possible to compare accounts of teacher shortage challenges and incentivisation approaches. To provide a detailed basis for comparison, six country case-studies were developed. These case studies were selected because they highlight a range of incentivisation approaches.

4.13 An on-line survey was developed to gain additional perspectives on the literature. The survey was completed by experts with knowledge of teacher education issues. External experts, in each of the six countries, also checked the case-studies for accuracy.

4.14 There are a few points to note about the review process. Firstly, this is a scoping review not a systematic review of the literature. It aims to highlight the available international literature about incentivising entry to the teaching profession. It does not claim to be a systematic review of the literature, as this would have required a different methodological design. Secondly, all publications included are in English. It is possible therefore, that publications in other languages that may have been relevant and important are excluded. Thirdly, the selection and categorisation of outputs remains a matter of individual judgment thus regular inter-researcher reliability checks have been undertaken.

4.15 The review found that the academic literature (Appendix A) varied considerably in quality, scope and focus. In general, it was not helpful in building up a strong empirical picture of the effectiveness of the approaches and outcomes of incentivisation in different countries.

Many of the articles were overly descriptive or ideologically disposed with very few reporting empirical data or evaluative evidence.

4.16 In addition, the sheer variability across this body of literature made any generalisations about the impact of certain incentives difficult to reach. Each context brought its own specific policy issues, educational concerns, and professional responses which meant that the evidence base was difficult to navigate. The quality and reliability of this knowledge base also proved to be very uneven. Therefore, drawing any firm conclusions about what incentives work and why from this collection of articles would be not only difficult but also unwise.

4.17 The broader, policy-focused literature and the OECD country reports, however, were far more helpful in getting closer to the effectiveness of certain incentives and in compiling the six detailed case studies. This evidence base provided a much better and more reliable sense of contemporary country-specific challenges, approaches and processes.

4.18 It is important to note, however, that both the available academic and policy literature remains light on evaluative evidence concerning the effectiveness or impact of initiatives or incentives into teaching. The next section offers a general commentary based on the findings from this international review.

5.0 Commentary

5.1 This section offers a general commentary on incentivisation into teaching by drawing upon evidence from this review.

5.2 The review highlights that many education systems are trying to attract more people into teaching, especially those from more diverse backgrounds. This is not only in response to the shortage of teachers but also to broaden the range of teachers' backgrounds and experiences, thereby increasing the system's capacity to handle student diversity (OECD, 2018).

5.3 Over a decade ago, 'Teachers Matter' (OECD, 2005) emphasised attracting, developing and retaining effective teachers as a key priority for school systems worldwide. In TALIS (2008) approximately one third of the participating schools stated that there was a shortage of qualified, well-performing teachers. Teacher education also featured as a topic in TALIS (2013) and covered indicators concerned with initial teacher education (ITE), notably education in subject content areas and pedagogy, as well as practical experience in schools, along with indicators of professional development and its impact on teachers.

5.4 The central reported cause of teacher and school leader recruitment and retention problems is excessive workload, pressures of external accountability and long working hours. For example, in England, a recent survey[2] found that more than a third of school leaders are thinking of leaving the profession early, citing the pressure of workload, stress and school

[2] https://www.tes.com/tesv2/files/styles/news_article_ml_x2/public/media/image/2019-05/TES_SCHOOL_GV1.jpg?h=468a0b19&itok=yRbz09yZ

funding as the main reasons. Only half of the headteachers surveyed are confident that they will stay in their roles until retirement. The NAHT survey highlights that for the fifth consecutive year, schools are struggling to recruit across all roles, from teachers to senior leaders.

5.5 In addition, the administrative burden on teachers, in some education systems, remains considerable (e.g. Australia, England and USA) and this is prompting teachers to leave the profession or to consider other career options.[3] For example, teachers in the USA teach far more hours than in other countries: 1080 hours a year (at primary and secondary level). Korean secondary teachers teach less than half this number, despite their school year being almost three weeks longer than in the USA. Korean teachers spent just over 30% of their time teaching while in the USA this is almost 80%. Salary levels for teachers in Korea are also far higher than the USA.

5.6 Working hours in England[4] are significantly higher than other countries (TALIS 2013) and the Teacher Workload Survey (2016) shows that teachers still work long hours. Workload is consistently cited as one of the most important factors for teachers who are leaving the profession. As part of a consultation on teacher workload by the Department for Education (2015), an online survey was issued and revealed that 56% of the 43,832 respondents to the survey cited tasks around 'recording, inputting, monitoring and analysing data' as

[3] https://vision4learning.wordpress.com/education-around-the-world/international-comparisons/teacher-workload-and-pay/

[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/754349/Workload_Advisory_Group-report.pdf

burdensome and stressful[5]. The Workload Challenge (2015)[6][7] identified unnecessary tasks linked to assessment and data with 56% of respondents citing tasks around 'recording, inputting, monitoring and analysing data' as burdensome and stressful[8].

5.7 The review found that incentivisation into teaching has three main strands:

a) Financial rewards (e.g. bursaries, golden handcuffs, a salary while training, additional salary points for working in remote or rural schools);

b) Workplace conditions (e.g. bespoke coaching and mentoring, a clear professional learning entitlement, collaboration with other teachers/schools);

c) Professional Status (e.g. public view of the profession, ease of entering a teacher education programme and accredited professional learning opportunities i.e. a Masters level qualification.

5.8 Recently, the Department for Education in England[9] has pledged to simplify the process of applying to become a teacher, to make part-time working easier and to launch a new recruitment campaign. It has allocated £130 million a year for an Early Career Framework with

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[6] DfE (2015), 'Workload Challenge: analysis of responses': https://www.gov.uk/government/publications/workload-challenge-analysis-of-teacher-responses

[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/401406/RR445_-_Workload_Challenge_-_Analysis_of_teacher_consultation_responses_FINAL.pdf

[8] https://www.theguardian.com/education/2019/feb/25/teachers-experience-more-stress-than-other-workers-study-shows

[9] https://www.tes.com/news/support-new-teachers-key-recruitment-strategy

a two-year support package to help keep new teachers in the profession. Evidence would suggest that salary is a prime consideration when thinking about entering teaching[10] and a major deterrent when thinking about teaching as a career choice.

5.9 It has been argued, however, that the relatively low salaries of teachers, compared with those of other professionals with similar education, are unlikely to be the sole reason it has proven difficult to attract high-achieving students, and students from underrepresented backgrounds, to teaching (OECD, 2018). Transforming the work organisation of schools, involving teachers in school decision making, enhancing their leadership responsibilities and promoting teaching as a demanding but fulfilling profession are at least as important as increasing teachers' salaries.

5.10 Evidence from this review suggests that teachers are highly motivated by the intrinsic benefits of teaching i.e. working with children, helping them develop and contributing to society. The 'Teachers Matter' report, for example, concludes that extrinsic factors, such as job stability, pay or working hours, are of secondary importance for those who choose a career in teaching and who remain in the profession (OECD, 2005).

5.11 The OECD (2018:15) notes that while 'intrinsic factors are no doubt important for current teachers, these studies do not explain why other "potential teachers elected alternative careers instead of teaching or quit teaching after a while". In fact, studies that survey a larger pool of graduates about their career choices show that the relative salaries of graduate

[10] https://www.independent.co.uk/news/education/education-news/teacher-recruitment-crisis-shortages-pay-salary-workload-education-classroom-a8708456.html

occupations do play a role in these choices but had teachers' salaries been higher, more "potential teachers" would have seriously considered a career in teaching.

5.12 The following areas have been identified in the literature as having a direct influence on entry into teaching: recruitment including selection processes and regulations; teacher preparation; induction and mentoring opportunities; professional learning; teacher feedback and appraisal; career and leadership development. School policies, such as school curricula, assessments and accountability, school-funding strategies, and school organisation and scheduling, also influence decisions to enter the profession.

5.13 This review highlighted that increases in teachers' salaries can improve the attractiveness of the teaching profession but that this might not be enough to attract more high-achieving students into the profession. Extrinsic levers might only indirectly increase selectivity, for example, if the increase in the supply of candidates for the teaching profession is met by a stable demand for teachers. Evidence about the effectiveness of bursaries to attract people into the profession in the required numbers, especially in shortage subjects, is inconclusive.

5.14 The review found that the low status of teaching, the lack of professional development opportunities and the absence of clear career pathways were cited as key reasons, in many countries, for not entering the teaching profession. Media campaigns to enhance the image of the profession by highlighting its importance, its sophistication and the intellectual excitement it can generate, has shown to improve recruitment levels, particularly from those from minority or under-represented backgrounds. It is no accident, however, that high

performing PISA systems, such as Singapore, have a high cultural regard and respect for teachers.

5.15 In summary, the evidence from this review suggests that bespoke professional learning, engagement in professional collaboration with other teachers and schools, the provision of strong mentoring and coaching and clear career pathways are all proven and positive incentives to enter teaching. They are shown to be as important to potential teachers as financial reward or job security.

The next section outlines the country specific cases.

6.0 CASE STUDIES

6.1 This section outlines six country case-studies that address the following issues:

1. What recruitment issues is the teaching profession facing- what are the supply challenges?
2. Describe in detail the incentive systems in place, taking a broad conception of 'incentives', rather than purely financial.
3. What evidence is there of the impact of the incentives in place, and which have proved most effective?

The aim of each case study is to provide a more in-depth explanation of the way in which entry into teaching is being incentivised and promoted in different contexts. The case studies have been checked by country experts to ensure accuracy and to highlight any missed literature or evidence. All cases have been revised, some several times, based on expert feedback and commentary.

6.2. CALIFORNIA

CONTEXT- What are the supply challenges?

6.2.1 Nearly every state in America is experiencing some form of teacher shortage, particularly in certain subject areas e.g. Maths, Science and bilingual/foreign languages (Podolsky & Kini, 2016; California Legislative Analyst's Office, 2016; Aragon, 2018). Most of the US States are facing shortfalls in the number of bilingual education teachers and teachers who teach new English learners. The teacher shortages are most severe in the area of special education, with two in three teachers entering this field with sub-standard credentials (Darling-Hammond et al., 2018). Half of all schools and 90% of high-poverty schools are struggling to find qualified special education teachers (Sutcher, Darling-Hammond & Carver-Thomas, 2016). Teacher recruitment and retention challenges are also particularly acute in underserved urban and rural communities (Podolsky & Kini, 2016).

6.2.2 Mirroring this under-supply of teachers in the USA more generally, California State has particularly high rates of teacher shortages. Approximately 75% of Californian districts reported shortages in qualified teachers in the year 2016/17, and a large majority of these districts report worsening shortages subsequently (Podolsky & Sutcher, 2016; Darling-Hammond, Sutcher & Carver-Thomas, 2018). Enrolment on teacher education programmes has reached particularly low levels in recent year; in 2014-15 enrolment rates were just a quarter of what they were in 2001-2 (Carver Thomas & Darling-Hammond, 2017).

6.2.3 The supply of teachers in California has not kept a pace with growing teacher demand in recent years. Like the rest of the USA, teacher shortages are particularly acute in maths, science, special educational needs (Darling-Hammond & Podolsky, 2019) and bilingual education (Gentilucci & Brescia, 2017).

6.2.4 California State also faces a significant teacher quality challenge; between 2014-15 a substantial proportion of teachers were given permission to teach, despite not being fully trained for their teaching posts (Sutcher et al., 2016). Hence, a large number of districts in the State of California employ untrained teachers and substitute teachers. Rates of attrition are also particularly acute within schools in this State. Around 20% of new recruits leave the profession within three years. Rates of attrition are even worse in urban areas, with over 50% of newcomers leaving the profession in the first 5 years of teaching (California Teacher Association, 2019).

6.2.5 It is widely recognised that schools in socio-economically disadvantaged areas are most likely to face teacher shortfalls. This has a disproportionately negative effect on the learners who are living in such contexts (Sutcher et al., 2016). Teacher shortages are worse in districts serving California's most vulnerable students (Podolsky & Sutcher, 2016) including those from socio-economically disadvantaged backgrounds (Darling-Hammond et al., 2018). 83% of districts serving the largest proportion of students from low-income backgrounds have teacher shortages, compared to 55% of the districts with the fewest students from such backgrounds (Podolsky & Sutcher, 2016). In addition, 83% of districts with the largest concentrations of pupils from ethnic minority backgrounds have teacher shortages, compared to 57% of districts with the fewest number.

ACTION- What is being done about these challenges (i.e. incentives in place to tackle the issues)?

6.2.6 A wide variety of strategies and initiatives have been adopted at a district level to incentivise entry into teaching. Some of these approaches have focused on teacher preparation and progression into teaching, compensation, hiring and management and improving working conditions (Podolsky & Sutcher, 2016). Many districts in California are implementing strategies that have positively affected recruitment and retention.

6.2. A range of financial incentives have been implemented in California State in recent years directly aimed at tackling teacher supply issues. These financial incentives include designating $43 million dollars to help classified staff become certified teachers, $10 million to start new teacher training programmes for undergraduate students and $5 million dollars to launch a Centre of Teaching Careers, which is a recruitment and resource centre for teaching candidates and those considering teaching as a career. In total, California has invested nearly $200 million into tackling teacher shortages in recent years (Darling-Hammond et al., 2018).

6.2.8 In 2017, Federal Funding was allocated in order to address shortages through the CalEd competitive grant program. This programme offers grants aimed at the development of school leaders to assist with teacher recruitment and development, especially in the shortage subjects. There has also been significant State-wide investment (approx. $5 million) to

increase the number of teachers with bilingual authorizations through the Bilingual Teacher Professional Development Program (Darling-Hammond et al., 2018).

6.2.9 In 2018, a further financial investment of $75 million was targeted at teacher residencies to support the recruitment and training of teachers in special education, maths, science and bilingual education. In the same year, an investment of $50 million was aimed specifically at supporting the recruitment and retention of teachers in special education through a range of strategies including loan repayments, mentoring, retention bonuses and workload redesign (Darling-Hammond et al., 2018).

6.2.10 Financial incentives are also offered as part of the 'California Teacher Recruitment Programme'. which allows student teachers to receive 'financial aid' to support the cost of teacher training (Californian Teacher Programme, 2019). This funding comes from a variety of sources; federal government, state government and educational intuitions. The forms of financial support include scholarships, grants, loans and work-study internships (the latter provides employment during training).

***LEA level strategies**:*

6.2.11 Local Education Authorities (LEA) in many areas of the State of California are facing challenges in term of recruiting teachers. Gentilucci & Brescia, (2017) sought to identify effective recruitment strategies, implemented by LEAs in California, to recruit teachers to their schools. By focusing on LEAs where at least 90% of teaching vacancies are filled, they sought to identify the innovative strategies which show promise in terms of effectively

recruiting teachers. The authors were able to identify several approaches LEAs took to improving recruitment of teachers.

6.2.12 One effective approach was overcoming perceptions amongst potential recruits about the costs of housing in the local area**.** LEA leaders spoke about how they invited estate agents to be part of their recruitment efforts in order to inform potential new recruits about the affordability of the costs of housing in the area. Effective LEAs also operated proactive and strategic recruitment strategies to help them to recruit highly qualified employees and improve the likelihood of retention. These LEAs have well developed 'personnel succession plans' through tracking the employment status of their current employees so that they can estimate future hiring needs (for example, through collecting information of retirements and leavers). This way the LEAs can be proactive rather than reactive to hiring needs.

6.2.13 Another effective approach which the LEAs adopted was active recruitment strategies. Active recruitment strategies included building links with local universities and actively encouraging high-flying graduates to think about teaching by inviting them to different localities with the core aim of encouraging them to work within the LEA.

6.2.14 Other LEAs also sought to approach teacher supply issues through talent-acquisition. Rather than merely recruiting individuals using long-established human recourse protocols and approaches, the more effective LEAs used a strategy of identifying individuals who have specific skills or knowledge or expertise (for example, the ability to teach calculus or expertise in speech-language). Some LEAs used personalised methods such as texts, letters, phone calls to encourage specific individuals to apply for a teaching vacancy.

6.2.15 Some LEAs aimed to recruit high-quality candidates by promoting their excellent culture. Despite having a lower salary than surrounding LEAs, certain LEAs marketed and promoted their positive cultures to attract employees that were more likely to 'fit' and thus more likely to stay. LEAs that engaged in targeted marketing campaigns (rather than just advertising jobs) also reported that active and positive marketing helped them to recruit, even in hard to recruit subject areas (Gentilucci & Brescia, 2017).

6.2.16 In summary, the characteristics of the LEAs that successfully met their recruitment goals were as follows:

1) Forward thinking
2) Proactive
3) Active recruiting
4) Talent acquisition
5) Promote positive workplace culture
6) Marketing
7) Sustainably resourced
8) Data driven
9) Expanding the supply pipeline (Gentilucci & Brescia, 2017)

District level strategies:

In their study of 211 Californian districts, Podolsky and Sutcher (2016) describe the following strategies and incentives implemented by Californian districts to address teacher shortages. The key findings are summarised as follows:

6.2. Most districts in California (93%) have adopted teacher preparation strategies aimed at recruiting and retaining teachers. This largely entailed working with higher education providers to coordinate teacher training or residency programmes. A small proportion of districts have implemented pathways into teaching for high school students, paraprofessionals and district volunteers (these are sometimes called 'Grow Your Own' teacher preparation models).

6.2.18 'Grow your own' programmes support, train and recruit paraprofessionals and other community members to teach in their local schools. The California Classified School Employee Teacher Credentialing Programme, funded in 2016/17, supports paraprofessionals to earn a bachelor's degree and teaching credentials. This programme provides financial support for trainers to subsidise the cost of training for up to 5 years.

6.2.19 74% of districts in California report implementing financial strategies aimed directly at recruiting and retaining teachers. Also, most districts implement additional financial compensation for teachers assuming leadership roles.

6.2.20 Of those districts that implemented financial strategies to recruit and retain teachers, 53% offered additional compensation for increased teaching, leadership and mentoring. 40% of them provided increased salaries. Some districts also provided financial incentives for teachers in high-need locations or offered bonuses for new teachers accepting jobs in low socio-economic areas. Several districts also offered 'loan forgiveness' options which were

effective in recruiting high-quality teachers into fields or communities where they were most needed.

6.2.21 *Personnel Management strategies*: Over half the districts in the State of California (55%) adopt personnel management strategies aimed at recruiting and retaining teachers. Effective hiring strategies have been found to have a positive effect on rates of recruitment and in turn, better rates of schoolwide achievement. Amongst the districts that adopted personnel management strategies to recruit and retain teachers, 36% offered job sharing opportunities and 23% provided paid maternity/paternity leave.

6.2.22 *Working conditions strategies* 40% of all the districts in California State adopted working condition strategies to recruit and retain teachers, which essentially meant taking a positive approach to ensuring that working conditions would be most favourable to those entering teaching (Podolsky et al., 2016). Most commonly (a third of districts) provided bespoke mentoring for new teachers, additional professional development for all teachers, and common, collaborative planning time for teacher teams.

6.2.23 *District level strategies* aimed at improving the working conditions for teachers involved collaborative professional engagement i.e. teachers spending more time collaborating with other teachers within or across schools. Districts that allowed time for teachers to collaborate tended to do so by organising the timetable to allow for longer time periods for teacher planning and collaboration. Of the districts that implemented working condition strategies, 36% provided mentoring and induction to all new teachers, and 36%

provided common planning time amongst teaching teams. 34% provided additional professional development opportunities, beyond what the district had previously provided.

EVALUATION- Is there any evidence of success?

A brief discussion of incentivisation strategies, with evidence of a positive impact or some judgment about influence on teacher recruitment, follows.

6.2.24 *Loan forgiveness and service scholarships*: Over two thirds of those entering the teaching profession have borrowed money to cover the financial costs of training (Podolsky & Kini, 2016), resulting in significant debts for new teachers. A wide range of strategies have consequently been developed that aim to encourage higher recruitment and retention in the teaching profession by offsetting the cost of training.

6.2.25 'Loan forgiveness' offers teachers full or partial exemption from repaying their loans in exchange for a number of years' service in a particular school (such as a low-income school), subject area (e.g. maths, science) or field (e.g. special education) or location (The College Investigator, 2019). Scholarships also provide financial assistance for candidates undertaking teacher education or for teachers working in hard-to-fill schools or subjects for a specified period.

6.2.26 Both these strategies have been considered more affordable than more general salary increases and where they are large enough to offset the cost of training research indicates

that they can be very effective (Podolsky & Kini, 2016). Such financial arrangements have also been found to positively affect the recruitment and retention of teachers in schools and to the subjects where they are most needed.

6.2.27 *Teacher residencies*: Teacher residencies involving year-long intensive apprenticeships, building on the medical model, have also been found to be effective in attracting more diverse candidates, securing higher retention rates and attracting teachers to high need subjects and locations (Guha, Hyler, & Darling-Hammond, 2016). Within these teacher residences, apprentices work alongside an expert teacher in a high-need classroom for a year whilst completing a master's degree at a partner University.

6.2.28 The *Teacher Residency* model fosters tight partnerships between local school districts and Universities. Apprentices receive financial support and tuition in return to a commitment to teach in the district for 3-4 years after training (Guha, Hyler, & Darling-Hammond, 2016). Research suggests that retention rates are significantly higher amongst 'residency' teachers, even after many years in the profession, with some studies finding statistically significant rates of retention between residency and non-residency teachers (Guha et al., 2016).

6.2.29 Teachers' residency programmes often have specific goals in terms of recruitment, such as diversifying the teaching workforce or recruiting in shortage areas such as maths, science, special education or bilingual education. Guha et al. (2016) argue that residencies bring greater gender and ethnic diversity to the teaching workforce. For example, 45% of 'residents' were from ethnic minority backgrounds which is more than double the national average for ethnic minority teachers.

6.2.30 *Support and mentoring*: High quality induction for teachers, principally in the form of bespoke mentoring and coaching, reduced workload and collaborative planning time and extra classroom support are all associated with higher rates of teacher recruitment and can improve student learning (Podolsky, Kini, Bishop, & Darling-Hammond, 2016).

6.2.31 *Principal preparation and training:* Principal support has been cited as one important reason for teachers to remain in the profession (Podolsky, Kini, Bishop, & Darling-Hammond, 2016), especially in high poverty schools. Principal support has a critical and important impact on teacher retention, particularly in hard-to-staff schools. Evidence shows that where a Principal creates a positive working environment, with collaborative and supportive professional learning, it positively impacts on the recruitment and retention of teachers (Hughes, Matt, & O'Reilly, 2015).

In summary, California State is facing acute challenges regarding teacher recruitment but has responded positively to these challenges through the implementation of a range of incentives that are proving to be effective.

6.3 Scotland

CONTEXT- What are the supply challenges?

6.3.1 Scotland's teacher education system is based on university-led training with close connections to practice in schools. The OECD (2015:125) noted that: "Subject–based studies accompany education in pedagogy through concurrent and post-graduate models of training, ensuring that newly-qualified teachers are well prepared in content knowledge as well as teaching methodology" (OECD, 2015, p. 125). All students are required to hold a qualification in Maths and English. Teachers in Scotland are expected to hold a National 5 Maths qualification. This is the equivalent of GCSE Math grade B and above. In English, teachers are expected to hold a Higher in English at band C or above. This is the equivalent of GCSE English Language and English Literature passes at C or above (GTCS, 2013).

6.3.2 The Menter Report (2017) was commissioned in order to examine the role and contribution of higher education in teacher education in Scotland. The report noted that "there has been a continuing commitment to the centrality of higher education involvement [in ITE], especially by contrast with the situation in England" (Menter, 2017, p.2). Therefore, while other countries have diversified their routes into education, ITE in the Scottish context remains mainly university led. Scottish Universities form part of a strong, collaborative

partnership of teacher education along with schools, local authorities and other agencies (McIntyre, 2018).

6.3.3 In 2011, teacher education in Scotland was subject to a major review resulting in the publication of 'Teaching Scotland's Future' (Donaldson, 2011). This review concluded that supporting and strengthening the quality of teaching and the quality of leadership was critical to raising the performance of the Scottish education system. Fifty recommendations were set out and have been widely adopted. In a review of the progress since the publication of the report, it has been proposed that significant progress has been made particularly in engaging the teaching profession and in expanding professional learning (Black, Bowen, Murray and Zubairi, 2016). There are still a number of challenges, however, regarding the recruitment of teachers to the profession.

6.3.4 The number of teachers in Scotland has been rising in the last year to 51,959 (Learning Directorate, 2018; Seith, 2017). Although the number of teachers has increased overall, in almost a third of councils the total number of teachers fell (Scotsman, 2018; Seith, 2018). These are locations where there are considerable challenges of recruitment particularly to rural schools (Kirkaldy, 2017).34% of Scottish schools are classified nationally as rural (OECD, 2015). Ongoing research in the University of the Highlands and Islands (UHI) identifies key issues as: lack of professional networks, community expectations and the lack of boundaries between professional and personal lives.

The majority of local authorities have clear, effective and transparent processes and procedures for recruiting school staff. Difficulties with recruitment of staff is a concern

> in the majority of local authorities and this is regarded as a national issue. Staffing shortages are considered barriers to empowerment in that they limit opportunities for collaboration for improvement, access to professional learning and the provision of flexible pathways in the curriculum (Education Scotland, 2018, p.18).

6.3.5 In addition, like many other education systems, Scotland has difficulty in recruiting STEM teachers. Recent government statistics revealed that only 112 of 237 places allocated for maths teachers on initial training programmes were filled for 2017/18 (Scottish Funding Council, 2017). Other shortage subjects are home economics and English. There is also an ongoing shortage of teachers who are able to teach through the medium of Sottish Gaelic (Milligan et al., 2014).

6.3.6 In order to ensure the number of teachers meets the national requirements, Scotland has established a national workforce planning committee. This committee has representatives from Government, local government, universities and professional associations. This committee sets national recruitment targets annually, following an analysis of workforce requirements based on an annual census of teachers employed and teacher vacancies. The number of available places on postgraduate initial teacher education (ITE) programmes is then calibrated to balance the recruitment needs within the workforce. The number of places on ITE programmes has consistently increased in Scotland over recent years.

6.3.7 To address the teacher supply challenges, several strategies have recently been adopted in Scotland to incentivise entry into teaching, particularly focusing on the rural areas and hard-to-fill subjects.

ACTION- What is being done about these challenges?

The incentivisation strategies that have been implemented to tackle Scotland's teacher supply problems are as follows:

6.3.8 *New routes to the profession:* In 2018, a Master's level, fast-track programme into teaching was launched by the University of Dundee in conjunction with the Highlands and Islands University and four local authorities[11]. The programme covers the usual 2-year Post-Graduate Diploma of Education (PGDE) in 18 months. This programme is targeted at recruiting teachers in shortage subjects in rural areas (chemistry, computing, home economics, maths and physics). The programme enables teachers to learn through a 'blended-learning' approach in their own local area with financial support from the partner local authorities. The programme, along with a bursary, is offered to graduates who have a minimum of a 2:1 Honours degree.

6.3.9 Other new routes into teaching include two distance learning PGDE programmes run by the University of Dundee[12] and University of Aberdeen[13]. These programmes are aimed to supporting career changers currently working in local authorities. The programmes are offered in alliance with local authorities who release staff to complete the programme. The programmes make use of blended learning, e-learning, face-to-face workshops supported by the local authority, self-study, collaborative group work and professional practice on

[11] https://www.dundee.ac.uk/study/pg/secondary-education-pgce-sir/
[12] https://www.dundee.ac.uk/study/pg/education-distance-learning/
[13] https://www.abdn.ac.uk/study/postgraduate-taught/degree-programmes/1098/dlite-pgde-primary/

placement. Students enrolled on the programme retain their jobs while studying and attending training at weekends. Students are then released from their posts for school placement periods.

6.3.10 The University of Edinburgh, in partnership with local authorities, now runs a 'return to teaching' course for primary and secondary teachers[14]. The course is designed for those who have a teaching qualification but have had a career break or are new to the Scottish education system. The course comprises of 10 weeks of online teaching, with 2 in-person sessions.

> The Scottish Government and universities have worked together to develop alternative and new routes into teaching, with a focus on meeting demand in the subjects which have traditionally been difficult to recruit to, in response to the changing patterns of student demand for flexible learning routes. The establishment of the alternative and new routes will help achieve a better fit between demand for trained teachers and supply of graduates in the relevant subjects (SFC, 2019, p. 4).

6.3.11 *STEM strategy for education and training:* To tackle the shortages in STEM teachers, in April 2019 new bursaries were made available for those who were changing career to be teachers in maths, computing science, technical education and physics[15]. These bursaries provide £20,000 for students to train in these shortage areas. This financial aid is aimed at

[14] https://www.ed.ac.uk/education/professional-learning/returning-to-teaching
[15] https://www.gov.scot/publications/stem-teacher-education-bursary-eligibility/

career changers (those who have been in employment for three out of the last five years) and hold a degree of 2.1 or above.

6.3.12 The aim of the bursaries is to ease the financial burden of giving up paid employment in order to train as a teacher. Alongside the bursary, students have their tuition fees paid by the Scottish Government. On gaining their PGDE, these teachers will be required to participate in the Teacher Induction Scheme to complete their standard for full registration. They will also be expected to be employed as a teacher in Scotland for a minimum of 2 years following qualification (Gov.scot, 2019).

6.3.13 *Teacher Induction Scheme:* Following their initial teacher education programme, teachers in Scotland complete a probationary period. In most cases teachers follow the 'teacher induction scheme'[16] where they are guaranteed a one-year probation placement in a state school. This scheme was introduced in 2002 and is managed by the General Teacher Council Scotland (GTCS). Towards the end of their ITE, new teachers rank five local authorities in order of preference. There is also the option of the Preference Waiver Payment (PWP) which offers a £8,000 incentive payment to secondary teachers and a £6,000 payment to primary teachers to undertake their probationary year in any authority that the GTCS chooses.

6.3.14 All newly qualified teachers have a 0.8 full-time equivalent (FTE) timetable (GTCS, 2012). Each teacher is assigned a 'supporter' or mentor from among the school staff who is released for 0.1 FTE in order to support the new teacher. In addition, local authority

[16] http://www.in2teaching.org.uk/Students/student-teacher-induction-scheme-faqs.aspx

coordinators organise programmes of professional development for new teachers in their region (Hulme & Menter, 2014). It has been noted that this scheme represented 'a radical change in approaches to managing and supporting new teachers in Scotland' (Donaldson, 2011, p.31).

6.3.15 *Teaching Makes People Campaign*: In February 2017, 'The Teaching Makes People Campaign' was launched in Scotland to encourage university undergraduates studying STEM subjects, along with people working in STEM industries, to consider a career in teaching. The campaign used social media, online and radio advertising and targeted billboards alongside visiting recruitment fairs to highlight the benefits of a teaching career. In August 2017, the scheme was expanded to target university undergraduates studying English and home economics subjects, including food, nutrition and health courses, along with those working in industries related to HE (Gov.scot, 2017).

EVALUATION- Is there any evidence of success?

6.3.16 The Workforce Planning Committee noted a significant improvement in the supply of teachers in Scotland in 2018/19. Teaching numbers have reached their highest since 2010 (National Statistics Scotland, 2018). Furthermore, the numbers of teachers completing ITE in shortage subject areas has improved with only 11% of places unfilled on the secondary PGDE in comparison to 30% in 2017/18 (Learning Directorate, 2017; 2018).

6.3.17 In terms of recruiting to the shortage areas, clear improvements are in evidence. For example, 96% of the available places were filled for information technology in 2018/19

compared to 29% in 2017/18. In addition, 80% of the available places on maths ITE courses were filled compared to 47% in 2017/18 (Learning Directorate, 2017; 2018).

6.3.18 *Distance Learning Programmes:* The distance learning programme run by the University of Aberdeen is reported to be largely successful and grows in intake numbers and partner local authorities each year (Bain, Bruce, & Weir, 2017). It is suggested that the success of the programme is due to "local authorities which suffer from difficulties in recruiting and retaining teachers see people who are already settled in their area and likely to remain in post to be a more stable workforce. This, in turn, reduces both local and national expenditure on the training and replacing of staff" (Bain, Bruce, & Weir, 2017, p. 550). As a result of the programme's success the government continues to allocate full-funding to these distance learning programmes. The desire to ensure sustainable staffing levels means that local authorities make a greater commitment to collaborate with the university to deliver the programme (Bain, Bruce, & Weir, 2017).

6.3.18 *Teaching Makes People Campaign:* 3,500 people have attended 'teaching makes people' events throughout Scotland and there have been more than 42,000 visits to the website. Campaign tracking showed a 21 per cent increase in people considering applying for a postgraduate diploma in education. 40 per cent of people who had engaged with the campaign sought advice on a career in teaching (Gov.Scot, 2017).

6.3.19 *Teacher induction scheme:* Opinions differ widely on the merit of the scheme. It has been argued that since its inception the teacher induction scheme has offered a "sense of

expectation and security in what turned out to be acutely unstable and insecure times in the wake of the global economic crisis" (Hulme & Menter, 2014, p. 682).

In summary, evidence would suggest that the range of incentives that have been introduced in Scotland are proving effective. Evidence suggests they have impacted positively and collectively on teacher recruitment, particularly in the shortage areas and in challenging school contexts.

6.4 Australia

CONTEXT- What are the supply challenges?

6.4.1 In Australia, there are two general entry routes into the profession. The first route is a two-year postgraduate [Masters level] qualification following the completion of a bachelor's degree. In the second route, students undertake an integrated or combined undergraduate degree of four years where they combine undergraduate studies with education studies. This is often called a 'double degree' and allows students to study for two degrees at the same time. For example, students can graduate with a 'Bachelor of Teaching with a Bachelor of Science' (Kearney, 2014).

6.4.2 The trend in Australian teacher education increasingly has been away from undergraduate courses towards a Masters of Teaching, especially at secondary level. All ITE programs in Australia must include content, pedagogical knowledge, pedagogical content knowledge and curriculum knowledge in literacy, numeracy and other learning areas.

Programmes to prepare secondary teachers must provide all the above with knowledge in a specialist subject area and meet the Federal teaching and leadership standards (AITSL, 2018).

6.4.3 A significant shift in the recruitment of teachers into initial teacher education (ITE) took place in 2012 when the number of undergraduate course places, supported by funding from the Australian Government, was uncapped. Course providers were subsequently able to enrol as many or as few students as they wished. This was balanced, by a capping of graduate entry places into teacher education programmes.

6.4.4 In 2014, the Australian Government appointed a 'Teacher Education Ministerial Advisory Group' (TEMAG) to make recommendations on how initial teacher education in Australia could be improved in order to better prepare new teachers for the classroom. The Government considered the TEMAG (2014) final report and delivered the Australian Government response to this report in early 2015. The report and Government's response both resulted in significant changes to initial teacher education. These changes centred on: stronger quality assurance of teacher education courses; rigorous selection for entry to teacher education courses; improved and structured practical experience for teacher education students; robust assessment of graduates to ensure classroom readiness; national research and workforce planning capabilities (Department of Education and Training, 2015).

6.4.5 In 2011, The 'Australian Institute for Teaching and School Leadership' (AITSL) set out the requirements that an Australian ITE programme must meet in order to be accredited nationally. These standards were revised and updated in 2015 as a result of the TEMAG recommendations, and also subsequently, in 2018. These standards require ITE providers to

show that student teachers on ITE programs have demonstrated successful performance against all the *Australian Professional Standards for Teachers* (AITSL, 2018).

6.4.6 As a result of the TEMAG (2014) recommendations in order for education courses to be accredited by the AITSL, every candidate entering a primary teaching course in Australia is now required to graduate with a subject specialization, prioritising science, maths or a language. This does not mean primary teachers teach only in their area of expertise but that they are expected to assist other teachers within their area of specialization.

6.4.7 Australia is currently facing teacher shortages in some areas, such as secondary maths and science, languages and technology but there is oversupply in other areas such as primary teaching (TEMAG, 2014). There are also shortages in regional/remote areas in both teacher recruitment and retention (AITSL, 2018). As a result, an 'Inquiry into the Status of the Teaching Profession'[17] was launched in 2018. This has involved several public hearings attended by specialists in the field. A summary report highlighted several issues that needed attention including: teacher selection, induction and mentoring, specialist support, the use of data, professional development, early childhood, rural and regional teachers, collaboration and professional learning, and teacher welfare (Parliament of Australia, 2019).

6.4.8 A key recruitment difficulty in Australia is encouraging teachers to complete rural or remote service (Kelly & Fogarty, 2015). Just 10% of the Australian population live outside densely populated urban areas (Australian Bureau of Statistics, 2019). The challenges for

[17] https://www.aph.gov.au/Parliamentary_Business/Committees/House/Employment_Education_and_Training/TeachingProfession

many rural schools therefore have centred around recruiting and retaining teachers, especially at secondary school level (Commonwealth of Australia, 2013).

6.4.9 An Independent Review into Regional, Rural and Remote Education noted: “notwithstanding the efforts of governments, attracting and retaining the best teachers for regional, rural and remote schools continues to be one of the most persistent challenges on the ‘education agenda’” (Hasley, 2017, p. 17). The difficulty of attracting teachers to rural schools in Australia has a direct impact on the quality of education young people in these areas receive (Cuervo, 2016; 2018).

6.4.10 Another recruitment challenge in Australia is the decline in the proportion of male teachers entering the profession, particularly at the primary level (McGrath & Van Bergan, 2017). In primary schools, on average, eight out of every ten teachers are female (Weldon, 2015). In secondary schools this gender balance differs by subject.

> About three quarters of physics teachers are male and over 40% of them are aged over 50. Chemistry, computing and IT, and mathematics all have more men teaching in the area than women. Nearly half of the men teaching mathematics are aged over 50. Conversely, only about one-third of English teachers and less than one-quarter of language teachers are men. This suggests that physics, computing and IT, mathematics and chemistry remain largely dominated subjects and are more likely to suffer a shortage of teachers as men teaching these subjects retire (Weldon, 2015, p.6)

6.4.11 Overall, the various teacher shortages in Australia has led to out-of-field teaching i.e. teaching a subject for which individuals are not qualified due to a lack of teachers, particularly in rural schools. A report by the 'New South Wales Auditor General' stated that one-fifth of early career teachers reported teaching out-of-field for at least five hours per fortnight. "Half of these teachers indicated that they do not receive any additional support from their school to teach out of their approved area" (Audit Office NSW, 2019, p.8). Research suggests that 'students taught by out-of-field teachers have lower levels of engagement and this can compromise student learning outcomes' (ibid., p.8).

While ITE standards and regulations have been set at the national level, decisions about educational provision are devolved to States and Territories under the Australian constitution.

ACTION- What is being done about these challenges?

The following summarises key incentivisation strategies that have been put in place to address teacher supply problems in Australia. Some of the key strategies that have been put in place both nationally and at the state/ territory level to attract and retain teachers are explored.

6.4.12 *Recruitment of teachers to rural areas:* Several States have implemented different incentives to attract teachers to remote areas (Crehan, 2016). Two examples are as follows:

a) South Australia Country Incentives South Australia has employed a wide range of financial incentives to attract teachers to work in remote settings[18]. Firstly, different levels of increased annual payments are available for teachers for up to five years according to the zone where the teacher works. These payments are equivalent to approximately £1,000 in zone 1 (least remote) to £5,000 in zone 5 (most remote).

Similarly, one-off payments are made to teachers upon securing their first permanent teaching post. These range from approximately £250 (zone 1) to £500 (zone 5). Furthermore, locality allowances are made to staff who teach in remote schools as compensation for the adverse environment, devaluation of transport vehicles, increased cost of living, isolation, and the cost of travelling from distant schools for the holidays.

The South Australia Government also provides teachers with housing concessions as an incentive to attract teachers to remote locations. This can vary from 100% of housing costs being paid in the most remote areas, to 15% in less remote areas. Eligible teachers are also provided with finances to help with removal expenses and with the travel costs needed for medical and dental treatment.

Teachers who remain in remote areas for 4-5 years (depending on area) are also given a guarantee that they can return to work in a metropolitan area after this time. Finally, teachers who work in Aboriginal and Anangu schools for 2-3 years (depending on school) are entitled

[18] https://www.education.sa.gov.au/working-us/working-teacher/pay-and-allowances/allowances/country-incentives

to 1 term paid study leave or 'training and development' leave (South Australia, Department of Education, 2016).

b) Rural and Remote Human Resources Strategy, New South Wales: New South Wales (NSW) offers a number of financial incentives to those who teach in rural and remote areas of the region[19]. In 2019, financial incentives were increased with the financial package now providing the equivalent of approximately £4,000 annual training allowance, plus £270 per week while completing a rural training course and a £3,000 appointment allowance. Furthermore, the *Teach.Rural* scholarship program is aimed at attracting quality teachers to the rural and remote schools across NSW. These scholarships provide a maximum of £27,000 course contribution fees for those who achieve a credit or above in their academic program. Scholarship holders undertake a rural teaching program in preparation for teaching in a rural location.

In addition to the financial benefits on offer, New South Wales also provides professional benefits. These benefits include incentives aimed at attracting teachers to rural areas. For example, teachers who stay in a teaching position in a remote school accrue points which they can use to transfer to a different position elsewhere. A similar system applies for principals who remain in their position for more than three years. Furthermore, it is possible to fast-track temporary teachers who work in rural locations to permanent placements. Experienced teachers working in rural locations have enhanced access to professional development and knowledge sharing opportunities. Finally, teachers can undertake a 10-

[19] https://www.teach.nsw.edu.au/find-teaching-jobs/choose-rural

week trial before confirming a position in a rural school and are entitled to additional leave on top of the standard school holidays (Teach.NSW, 2019).

6.4.13 *Career progression* In Australia, most jurisdictions place teachers on a provisional register for a period of 12-18 months before they are considered fully qualified. During this time teachers are required to provide evidence that they have achieved the necessary standards for professional practice. They receive school-based mentoring alongside an induction programme. Induction programmes are usually run by either the state, or the employer. In some states, mentors are offered release time from the classroom in order to carry out their mentoring role.

6.4.14 From February 2017, teachers in Australia have been able to access a mobile phone application 'My Induction' which allows them to engage with resources and activities to support their professional development. These include tips from expert teaching professionals, along with methods to track their professional wellbeing (AITSL, 2017).

6.4.15 In addition, at a Federal level, AITSL has now implemented an accreditation process to appraise teachers at different points in their careers. All areas in Australia are now using this application process to become an accredited 'highly accomplished' or 'lead' teacher - based on these standards. Those teachers who are successful in reaching these levels receive a substantial increase in salary which helps significantly with teacher retention.

6.4.16 Enhanced induction is also on offer to teachers throughout Australia. Two examples follow:

a) Victoria institute of teaching (VIT): VIT provides teachers in their induction stage with an array of resources. The entire process is centred around the 'Inquiry Approach' to professional learning:

> The Inquiry Approach is completed by the teacher with a class/group of children they are teaching. Teachers then determine the current level of learning, devise a question for inquiry, develop their professional knowledge, and put this into practice. Finally, the teacher assesses and reflects on the impact of this teaching on the learners (Teachers Registration Board, 2018, p.37).

In order to gain full registration, teachers must present the results of their inquiry approach to a panel. VIT also run an 'Effective Mentoring Program' (EMP) which is a research-based program developed by VIT and the Department of Education and Training. This is a free two-day program to prepare teachers to be mentors (Teachers Registration Board, 2018).

b) New South Wales Education Standards Authority: In NSW all permanent beginning teachers in the first year of their teaching are given two hours release time per week to be used for professional learning, the preparation of lessons, receiving guidance from more experienced teachers, or spending one-on-one time with students. In their second year of teaching, new teachers receive one hour per week for the above activities with the view that this time might also support finalisation of their accreditation to full teacher status. To gain full accreditation, each teacher is assessed by a supervisor who judges whether they meet the standards set out by APST. In NSW a teacher must be re-accredited by the Teacher Accreditation Authority every 5 years (Teachers Registration Board, 2018).

6.4.17 Alternative pathways to teaching There have also been recent expansion of routes into teaching within Australia. For example,

a) High achieving teachers' programs: From 2020 Australia will run a high achieving teachers' programme providing employment-based pathways into teaching for high-achieving individuals who are committed to pursuing a career in teaching[20]. This program offers two alternative pathways for higher achievers. Those running the programs will be Teach For Australia (a pre-existing program) and La Trobe University (selected following a tender process in 2018).

b) Teach for Australia (TFA): Since 2009, the Australian Government has supported the 'Teach for Australia' program to provide an employment-based pathway into teaching. The Australian Government provides most of the funding for this programme. To date, the Australian Government has committed support for ten cohorts providing more than $77 million (£41 million) in funding through past and present contracts spanning from 2008-09 to 2020-21. The key aim of the programme is to improve outcomes from students in disadvantaged schools by creating a community of high-quality teachers who have a strong regard for socially and educationally disadvantaged school communities.

c)NEXUS Program La Trobe University: While TFA aims to provide high quality teachers to disadvantaged schools, the focus of the NEXUS program is to encourage teachers to work in

[20] https://www.education.gov.au/alternative-pathways

culturally diverse communities. Teachers will begin working in a supported teaching position, before becoming a classroom teacher, during which time they will work towards achieving a Masters of Teaching over two years (Department of Education and Training, 2019). Both TFA and NEXUS have been funded alongside research to evaluate the impact of the programs.

d) School Centre for Teaching Excellence: In 2010 the School Centre for Teaching Excellence (SCTE) was been set up in Victoria. This program funds university–school clusters comprising 6 universities and 50 schools. The initiative seeks to build school capacity to provide professional placement experiences for teacher candidates. The SCTE offers clinical placements for pre-service teachers, so that they are more closely integrated with teacher education courses and with the life of the school. These more immersive residency models involve university staff working with teams of teachers and student-teachers in schools – undertaking curriculum planning, school improvement strategies and research (Darling-Hammond, 2017).

6.4.18 Teacher Selection: Under reforms proposed by the Teacher Education Ministerial Advisory Group (TEMAG, 2014) new graduates enrolling into ITE will be selected on both academic and non-academic capabilities. Australia have introduced literacy and numeracy tests that all ITE students must sit. The Australian Council for Educational Research[21] (ACER) is the test administrator and is responsible for delivering the test in selected testing centres and through an invigilated online environment. Trainee teachers will need to be in the top 30% of the population in terms of literacy and numeracy competency. This is to ensure that

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teachers have the literacy and numeracy skills to meet the demands of teaching. It also has aims to ensure that the general public have increased confidence in the skills of graduating teachers.

EVALUATION- Is there any evidence of success?

6.4.19 *Recruitment of teachers to rural areas- NSW Incentives.* As of March 2016, 310 teachers in NSW had benefited from rental housing subsidy. A survey into teacher retention indicated that the rental subsidy for remote schools is having a significant impact on reducing the risk of teachers leaving their school. NSW also offers scholarships for ITE for those committing to teach in remote locations. As of 2016, two- thirds of the scholarships were awarded to students from rural and remote backgrounds. Nine in ten survey respondents that commenced their scholarship in 2015 plan on teaching and living in a rural and remote community for longer than 3 years after graduation (Centre for Education Statistics and Evaluation, NSW, 2016). However, in a survey of teachers in NSW, Handal, Watson, Petocz and Maher (2018) still found the majority of teachers working in rural schools are fairly unexperienced, furthermore, the vast majority of teachers only stay for a short period of time.

6.4.20 *Alternative pathways to teaching – Teach for Australia:* This program has placed more than 650 teaching associates in more than 150 schools in Victoria, Tasmania, the Australian Capital Territory, the Northern Territory and Western Australia, filling hard-to-staff teaching positions, including STEM subjects. Over 40 per cent of the associates have been placed in regional, rural and remote communities, while the remainder being placed in disadvantaged metropolitan schools. A 2017 independent evaluation of TFA reported positive outcomes of

the program. The evaluation showed that those on the program become high quality teachers that deliver the skills that the schools need. Furthermore, the evaluation found that most teachers remain in teaching for more than two years after their placements however they show a moderate shift towards teaching in less disadvantaged schools after two years (Dandolopartners, 2017). However, the ex-Deputy Chair of AISTL, Bill Louden, in the Conversation (Aug 23rd, 2014), described TFA as a "very small scale and expensive intervention to recruiting high quality graduates to the teaching profession". The Dandolopartners (2017) review also echoes these concerns stating TFA has a higher unit cost than any other ITE teacher education program.

6.4.21 *School Centre for Teaching Excellence:* The Australian Council for Educational Research (ACER) evaluated this program in 2013 and found that the initiative has strengthened teachers' preparation in several ways. Firstly, communication between schools and universities have been improved due to the site-based nature of the training. Secondly, the model enabled the development of practice-oriented models of teacher education, with greater emphasis on preservice participation in the life of the school; this has led to greater opportunities for mutual support in the school. Thirdly, professional collaboration among teachers in schools has improved due to better mentoring cultures that have developed out of various mentoring initiatives. Finally, the enhanced school-university relationships courses have led to a positive effect on school curriculum design (Rowley, Weldon & Kleinhenz & Ingvarson, 2013).

In summary, Australia is addressing its recruitment issues using a variety of different incentivisation methods. It is implementing a range of approaches to make teaching an appealing profession and to produce high-quality teachers.

6.5 Singapore

CONTEXT- What are the supply challenges?

6.5.1 The education system in Singapore is one of the highest performing in the world (BBC News 2016, TES 2016, Ng 2017, OECD 2018); it has routinely ranked highly in the Programme for International Student Assessment (PISA) scoring higher than the OECD country average in the 2015 PISA results i.e. Science, Literacy, Maths and Reading (PISA, 2015).

6.5.2 The quality of teaching and teacher training have been cited as integral to the success of the education system in Singapore (OECD, 2018). The OECD reports that higher performing countries like Singapore tend to emphasise clinical education within initial teacher education which helps to bridge theory and practice at the beginning of their teaching careers. There are also bespoke opportunities for in-service training and collaborative professional development and a significant emphasis is placed on teachers' continual improvement and development (Ng 2017). The strength of Singapore's education system is also said to lie in the 'community of teachers' which is intentionally fostered so that there are high levels of support amongst them (Ng 2017, p152).

6.5.3 Broader cultural aspects also explain the success of Singapore's education system. According to some commentators, Singapore's success is largely attributed to contextual factors that cannot be replicated elsewhere (Fletcher-Wood, 2018). Singapore is a small country with a highly centralised education system in the sense that the vast majority of

schools are government schools and all schools report to the MOE. At the same time, high levels of power are decentralised to schools and schools are made highly accountable for ensuring that education policies, set by the MOE, are implemented (Ng 2017).

6.5.4 There are strong links between the Ministry of Education (MOE), the National Institute of Education (NIE) and schools (Ng 2017, Stewart 2019). This close partnership between the MOE, the NIE and schools ensures coherence between policy, preparation and practice (Ng, 2017). Indeed, a distinct feature of the Singaporean education system is the fluid movement of professionals across the three pillars of the education system. Professionals in schools, the MOE and the NIE are regularly and deliberatively moved around in order to maintain a high level of "communication, coordination and understanding amongst policy makers, academics and practitioners within the education system" (Ng, 2017, p 23).

6.5.5. Teaching is also a highly regarded profession in Singapore and attrition rates are typically very low (below 3%) (Teng, 2016). According to the OECD TALIS (2013-14) survey, teachers in Singapore are considerably more likely than the TALIS average to say that teaching is a valued profession in their country. This reflects the MOE's efforts to enhance the attractiveness of the teaching profession, improve the image of the teacher and the value and significance of the education system more generally (*see Ng 2017, p 153 for a detailed discussion of the use of media advertisements by the MOE to promote the education system and teachers within it*).

ACTION- What is being done about these challenges?

6.5.6 *Wider cultural drivers:* Since gaining independence, Singapore has built its own unique education system which has emphasised the importance of teaching as part of national welfare and pride. Singapore has thus made great efforts to transform teaching into a highly valued and respected profession and significant efforts have been made to continuously instate the values, purpose and ethos of the teaching profession (Ng, 2017, p 151). Education and teaching are understood through a highly positive cultural narrative in which the ideal of the caring teacher is central to the teaching profession. Thus, teachers in Singapore are supported, at every level, to ensure that they are 'caring educators' (Ng, 2017, pp145). At an *affective* level, teachers are supported to care for their students, at a *professional* level teachers are supported to care about their craft and at a *systemic* level teachers are supported to continue their care. Through these levels; affective, professional, and systemic, Singapore promotes the production of caring educators (Ng, 2017).

6.5.7 In 1997, the *Thinking Schools Learning Nation* reform was implemented. This reform encouraged citizens to think of education as a life-long process, and according to Ng et al. (2018) played an important role in stimulating changes in recruitment, preparation, compensation, status and professional development. This reform redefined the role of the teachers so that each school would be a 'model learning organisation' meaning that teachers should seek 'new ideas and practices' and should 'continuously refresh their knowledge' throughout their career (Darling-Hammond, 2017, p, 929).

6.5.8 *Teacher training and preparation:* All teachers are trained in the National Institute of Education where they study for either a degree or a post-graduate diploma depending on their level of education on entry (Ng 2017; Darling-Hammond 2017). Singapore has made strong commitments to providing quality teacher education through the NIE pathway where coursework and clinical work are rigorous, and there is an emphasis on mastering both content and pedagogy.

6.5.9 Recruitment into teacher training in Singapore is highly selective. Graduates from the top third of the secondary school are recruited and are offered attractive conditions for study and work, such as financial support during training (OECD 2018). Whilst Singapore does not restrict entry into the teaching profession, a probationary period is stipulated where they are evaluated. Darling-Hammond (2017) argues that Singapore has not engaged in programmes which create less extensive pre-service preparation, such as Teach-for-America or Teach-for Australia which offer just a few weeks pre-service training, but instead has stronger and more equitable investment in the teaching profession.

6.5.10 *Financial supports and salaries:* Significant financial investment and careful and 'effective use of resources across the system' are significant features of Singapore (Ng 2017, p24). Applicants wanting to enter the teaching profession must apply to the MOE which recruits applicants on the basis of need for teachers in specified fields or subjects meaning that there is no wastage of human resources. Successful applicants are employed by the MOE and put on a salary scale and are sent to the NIE for their training (Ng 2017). On beginning their training, trainees sign a contract with the MOE stipulating that they must work as a teacher for 3 years. The contract provides the applicant with a guarantee of employment at

the end of training but it also obliges them to see through their contracts. The Ministry of Education is the employer and pays teachers' salaries and this is reviewed and revised regularly to ensure that teaching is seen as an attractive occupation in line with other fields such as engineering, law and business (NCEE 2016). New teachers in Singapore receive salaries which are comparable to other well-paid professionals at the beginning of their careers (NCEE 2016).

6.5.11 After graduating, all trainees are guaranteed a job (Fletcher-wood 2018), (since they are already employed by the MOE) and are posted to schools by the MOE (Ng 2017). Applicants do not know where they will be posted when they begin their training. The message to applicants is very clear; applicants must be willing to work with children and young people of different backgrounds, walks of life and cultures and have a passion for teaching children and young people. This is an important aspect of the cultural narrative around teaching, and a very distinct feature of the Singapore education system (Ng 2017).

6.5.12 *Induction and mentoring:* Singapore has a highly comprehensive system of support and induction and induction programmes are widespread for new teachers. After initial training, beginning teachers enter into a '*Structured mentoring programme for Beginning Teachers*' in which they have access to mentors, along with tailored courses and a buddy system (NCEE 2016). The buddy system partners teachers with a colleague who teach that same subject, along with a supervisor. New teachers also have a reduced workload of approximately 2/3rds of an experienced teacher.

6.5.13 In Singapore, a high proportion of teachers are in a mentoring role and mentees are carefully matched with mentors who teach the same subject. Indeed, mentoring is a significant mechanism in the professional development of teachers across all stages of the career. Mentors who have been specially trained in the NIE have a stipulated role in supporting and mentoring new teachers (Darling-Hammond 2017).

6.5.14 *Professional development and career progression*: There is a large emphasis on teachers' career progression and development and teachers are encouraged to pursue their interests and talents, reflected in the strong governmental support for additional training (Darling-Hammond 2017). Following teacher training, the MOE sets out key knowledge skills and attitudes that teachers are expected to hold at different stages of their career. Teachers are encouraged to develop their careers through pursuing one of three pathways or 'tracks'; Leadership track, Teaching track or Specialist track (Ng 2017). Teachers pursuing a 'Leadership track' are progressing towards positions as headteachers or heads of department, those pursuing the 'Teaching track' develop skills and knowledge to become masters in curriculum, learning and pedagogy and in the mentoring and coaching of junior teachers. Those pursuing a 'Specialist track' may undertake additional education and training in a specialist area, through pursuing further education (such as a doctorate) to become a specialist (for example, in counselling or wellbeing). Hence, Singapore has a very clearly defined career ladder which provides opportunities into a range of leadership positions.

6.5.15 This career ladder supports teacher in the integration of theory and practice during the teacher preparation and induction process. Whilst beginning teachers receive more intensive mentoring, this is not confined to the induction and preparation stages of a teaching career.

Rather, it occurs across the whole education system and at various stages of a teaching career. For example, more experienced teachers receive coaching and mentoring to support them in their progression towards leadership roles. Mentoring and coaching is more intensive at significant career milestones- for example, when a teacher is making a transition to becoming a head of department. As soon as teachers enter the profession, teachers are assessed using extensive feedback procedures, to see if they have the potential for one of three different career pathways, each of which has salary increments. Those identified as future leaders are moved to middle management teams and receive commensurate training. Those who are identified as senior or 'master teachers' later in their career become mentors in teacher induction and they also mentor new teachers for several years. These mentors have an explicit mission to support new teachers. This systemic mentoring process is a key feature of the Singapore system and undoubtedly part of the reason for the high quality of its teacher workforce. Indeed, support from the school and mentoring are important in enhancing teachers' sense of efficacy which in turn is crucial in determining teachers' decisions to remain within the profession (Ng et al., 2018).

6.5.16 Continuing professional development is a significant feature of Singapore's education and a substantial amount of professional development is school-based and is embedded within everyday activity, for example, through the coaching and mentoring of teachers by teachers. The NIE also provides a substantial amount of professional development, especially for milestone development (for example, for vice-principals who are identified to be potential school principals). In addition, the MOE encourages professional development through cross-school and teacher collaboration. The Online Student Learning Platform is an example of a national level effort to encourage sharing of practice across teachers and schools (for

example, through enabling teachers to access videos of excellent lessons). The Singapore system is a united education system and whilst there is a healthy level of competition between schools, schools are highly collaborative. More generally, Singapore has placed considerable emphasis on developing professional learning communities with the aim of building school leaders and teachers' capacity (NCEE 2016).

EVALUATION- Is there any evidence for their success?

6.5.17 Singapore has made concerted efforts to hire good teachers who are highly qualified and have a passion and heart for children and young people, and this is reflected in the success of the system more generally (Ng 2017). Whilst the financial support that trainee teachers receive and supportive induction programme are also important in this, the positive professional cultures and copious opportunities for professional development and career progression have been cited as key reasons for low rates of attrition in Singapore (Darling-Hammond 2017).

Summary

Whilst cultural and contextual factors such as the high esteem attached to the teaching profession play an important role in Singapore's success, several policy drivers are also important. Combined, these factors appear to play an important role in the success of the education system more generally, as well as the successful recruitment and retention of teachers:

1) Positive cultural messages which uphold the image of the teaching profession, and teachers within it, have been a significant part of a concerted national efforts to reinforce and reaffirm its value, purpose, ethos and image. In addition, national level events such as the annual Teachers' Day and the President's Award for Teachers have also been important mechanisms for raising and maintaining the esteem and value of teachers (Ng 2017, p152).
2) The MOE has a highly selective process, enabled by a large number of applicants for positions. Applicants accepted by the MOE into teacher training generally have high levels of academic attainment. Yet the MOE does not just consider academic attainment but also applicants' fit for the teaching profession including qualities such as their capacity to explain complex ideas to children and their more general caring attitude.
3) The fees are sponsored by the government and teachers are hired by the MOE before they begin training at the NIE whereupon they receive a salary whilst they train.
4) Extensive induction and support programmes for new teachers, including mentoring and buddying, reduced workload and training courses.
5) Significant emphasis and planning of career progression, development and career pathways which are clearly defined so teachers pursue a career pathway suited to their interests and talents.

6.6 NETHERLANDS

CONTEXT- What are the supply challenges?

6.6.1 The Netherlands is experiencing a new wave of teacher shortages, particularly in primary schools, in certain geographic regions and in secondary subjects, such as science and languages (Deelen & Kuijpers, 2018; NCEE, 2019; Dutch News.nl, 2019). In recent years the lack of 'good' teachers has been recognised as a significant issue by Dutch education ministers (van Geffen & Poell, 2014). The European Commission (2018a) predict rising rates of teacher shortages between 2020-2025.

6.6.2 Recent media coverage has highlighted that teacher shortages in the Netherlands have reached a critical level and include reports of teachers working while unwell or schools using unqualified teachers because of the shortage of supply or cover teachers (Dutch News.nl, 2018). It is argued that teacher shortages are having a detrimental impact on the quality of education provided in Dutch schools (Zonderland, 2019).

6.6.3 Teacher shortages in the Netherlands are explained partly by retirement rates. The Netherlands, like other countries, has an aging teaching population (Helms-Lorenz et al., 2016). Data indicates that Dutch teachers are older than the OECD average; 46% of secondary teachers are over 50, meaning that Netherlands may face further possible teacher shortages in coming years (OECD, 2014; Harris & Jones, 2017). Teacher shortages are also explained by an insufficient supply of new high quality teachers into the profession (Helms-Lorenz et al., 2016). The NCEE (2019) reports a significant reduction in the number of first-year teacher

trainees between 2006-2015 entering the profession. The number of individuals graduating from teacher training programmes each year has been estimated to be only enough to fill half of the available teaching vacancies (Fontein et al., 2016 cited by den Brok, Wubbels & Tartwijk 2017).

6.6.4. Rates of attrition in the Netherlands are moderate in comparison with other countries (den Brok et al., 2017), yet the causes of attrition relate to workloads and long working hours (den Brok et al., 2017). Attrition is lower amongst teachers with full teaching qualifications and with higher skills than those without them (Helms-Lorenz et al., 2016).

6.6.5 Currently, there is no mandatory national programme for the induction of new teachers which means that there is uneven implementation of induction programmes across schools (NCEE 2019). Substantial numbers of new teachers (primary and secondary) receive no induction at all (NCEE 2019) which is surprising in a country that invests so heavily in professional learning for teachers and school leaders (Harris & Jones, 2017).

6.6.6 Levels of teacher pay may also be hampering efforts to improve recruitment into the profession in the Netherlands. While the starting salary for lower secondary teachers is above the OECD average, they earn less than the average for other Dutch professionals with commensurate degrees. Salaries for primary teachers are even lower and it is suggested that remuneration is the prime cause of low recruitment into teaching (NCEE, 2019). In recent months, Dutch media sources have reported that Dutch teachers are striking amidst calls for better wages and working conditions (Reuters, 2019).

ACTION- What is being done about these challenges?

6.6.7. Currently, the teaching shortage in the Netherlands is affecting large parts of the country but the extent of the shortages varies by region (European Commission, 2018a). It has been argued, therefore, that a regional approach to tackling the issue of teacher shortages is needed (European Commission, 2018a). Thus, significant efforts have been made in recent years to increase the quality and quantity of teachers in the Netherlands, particularly in primary schools where shortages are more acute (NCEE, 2019).

6.6.8 Financial: There has been significant Government investment in tackling the downturn in recruitment. For example, the tuition fees for students who are engaging in teacher training have halved in the last two years. In addition, 270 million euros were invested in the improvement of teachers' salaries and 430 million euros was deployed to reduce the workload for teachers in Dutch primary schools (European Commission, 2018a).

6.6.9 Other initiatives included promoting the inflow of candidates into teaching from other sectors (lateral entry) and encouraging re-entry into teaching. In 2018, the Dutch Education Minister pledged an extra 21 million Euros to address teacher shortages in Netherlands (Dutch News.nl 2018). This funding has been used in a number of ways including the *Teacher Development Grant* which enables teachers to upskill to a master's degree course where course fees are covered (European Commission, 2018b).

6.6.10 Teachers wanting to pursue a PhD can also apply for a *PhD Grant* which will fund their part-time study. The extra resource has also given some teachers in shortage areas a reduced teaching load (3 days a week) on full salary for 5 years (European Commission, 2018b). A

diversified system of posts and salaries are also offered as incentives with the clear prospect of promotion to more senior posts and higher salaries.

6.6.11 *Teacher training and professional development:* School-based teacher education is the main model of teacher education in the Netherlands, where strong collaboration between schools and teacher education institutions exists to educate new teachers (Murray, Swennen & Kosnik, 2019). This approach follows the Finnish model where specialist 'training schools' are home to trained, well-qualified mentors and are part of a 'schools-based' approach to teacher education. Evidence suggests that this mode of teacher education has positive implications for the quality of teacher education and has enabled the development of schools-based teacher educators (Murray et al., 2019). In addition, consultancy agencies also provide teacher training.

6.6.12. Efforts have also been made to encourage young people with higher vocational qualifications to enter teaching and to ensure that part-time students, who already have a higher vocational education qualification, are allowed to teach classes provided they meet a number of quality requirements (European Commission, 2018a). In the Netherlands every year, fifty teaching assistants have the opportunity to undertake a programme of teacher training.

6.6.13. Teachers are taught to master's level as part of their formal preparation for teaching which run for one to two years. Students on such programmes are eligible for a year's financial support. Financial assistance, for two years, however, may be granted for a master's degree at the Minister's discretion, for example, for science or technology teachers.

6.6.14. The Netherlands has invested in alternative routes into teaching developed to attract more talented graduates into the teaching profession. One such programmes has been Eerst De Klas (translated at 'Teach First,' which is popular in the USA and England), the other is 'Onderwijs Traineeship' (translated as Teacher Traineeship). Both of these programmes are aimed at attracting more high-quality graduates into the profession (Deelen & Kuijpers 2018).

6.6.15 'Teachers 2020: a strong profession'- sets out a clear action plan to improve the teaching workforce in the Netherlands. This plan includes:

- Encouraging schools to become highly professional organisations by introducing an ambitious, results-based culture and by stimulating professional HR policies.
- Giving teachers rich opportunities for professional growth and by rewarding excellent teaching.
- Schools in the Netherlands receive additional funding for promoting teachers to higher positions and educating new teachers to a higher level and by stricter standards.

6.6.16 *Returning teachers:* Unemployed teachers in the Netherlands are being actively encouraged to return to teaching as part of a deliberate strategy to tackle teacher shortages (European Commission, 2018b). A 'Participation Fund' will pay extra benefits to teachers who agree to return to teaching. It is anticipated that this fund will encourage more than 1000 teachers to return to the job in the next two years.

6.6.17 *Improving the teaching profession:* Within the Netherlands, various efforts have been made to improve the teaching profession and to promote excellence in education. One strategy that is currently being implemented is the new 'Teachers' Programme' which aims to improve the quality of teachers and teaching. It aims to attract high performing students into the teaching profession, improve teacher pre-service training, provide attractive and flexible development pathways and develop support for teachers at the start of their careers (OECD, 2014).

EVALUATION- Is there any evidence for their success?

6.6.19 External evaluative evidence of the effectiveness of strategies implemented in the Netherlands is limited, however, there is some evidence regarding the effectiveness of strategies for improving teacher retention and for teacher traineeships.

6.6.20 *Induction support:* High quality coaching and supervision, reduced workload and social networks for beginning teachers are viewed as important in reducing attrition amongst beginning teachers (den Brok et al., 2017). Induction programmes specifically designed to support the training and retention of new teachers have been found to have some, albeit small, positive effects on retention (Helms-Lorenz et al., 2016). In their study of the effects of induction programmes on attrition rates, Helms-Lorenz et al. (2016) found that teachers who had received a 3-year induction programme (which involved a number of elements including reduced workload, mentoring, professional development planning and classroom support) were less likely to leave the profession than teachers who had not received this programme, and they were less likely to switch schools.

6.6.21. *Teacher traineeships:* Teacher traineeships have been developed in the Netherlands aimed at improving the quantity of high-quality graduates entering the profession (Deelen & Kuijpers, 2018). In their study of the effect of these programmes on teacher recruitment (Eerst De Klas and Onderwijs), Deelen and Kuijpers (2018) found no significant positive effects of being selected for a traineeship on the likelihood of enrolling on academic teacher training.

Summary

The teacher shortage problem in the Netherlands is being addressed in several ways. Incentives into teaching include teacher traineeships, sponsored qualifications and better induction support.

6.7 Ireland

CONTEXT- What are the supply challenges?

6.7.1 In the Republic of Ireland there are two main routes into teaching; a 4-year undergraduate Bachelor of Education or a 2-year postgraduate Professional Master's in education (PME). New changes to the minimum entry requirements for primary initial teacher education programmes were announced in October 2017. These changes set higher minimum entry standards for primary initial teacher education programmes for Maths, English (required to be at Ordinary Level) and Irish (required to be at Higher Level) (Department of Education and Skills, 2017)[22]. At undergraduate level, trainee secondary teachers study a concurrent degree where they study a specialist subject alongside general education. At postgraduate level secondary students must firstly hold an Honours bachelor's degree or equivalent, which is deemed by the Teaching Council to satisfy the requirements for at least one curricular subject, before undertaking a 2-year Professional Masters programme.

6.7.2 Sahlberg et al. (2012) reflected on the structure of ITE in Ireland in the context of best practice internationally. The aim of the report was "to identify possible new structures which will recognise and address weaker areas in the system of teacher education; leverage the current strengths in the system; and envision innovative strategies so that Ireland can provide a teacher education regime that is comparable with the best in the world" (Sahlberg et al., 2012, p. 6).

[22] The equivalent is a requirement of:

- a grade C at A Level Irish;
- a grade C at GCSE in both English and English Literature, or a Grade B at GCSE level in either;
- a grade D at GSCE level in Additional Mathematics or a Grade A at GCSE level in Mathematics.

6.7.3 Traditionally, teacher education programmes in Ireland have been “high status, over-subscribed, typically attracting a very high calibre of entrant” (O’Doherty & Harford, 2018). Furthermore, “the academic standard of applicants is among the highest, if not the highest in the world” (Sahlberg et al., 2012, p.19). An OECD review into the attractiveness of the teaching profession internationally found 11.8% of Irish 15-year-olds in 2015 aspired to a career in teaching. This was almost treble the 4.2% average in the 68 countries surveyed (OECD, 2018).

6.7.4 Primary teacher education continues to attract a high calibre of student. Heinz and Keane (2018) report that primary teaching remains a popular career choice in Ireland attracting high academic achievers. Evidence suggests, however, that there has been a significant fall in numbers of students applying to secondary level (post-primary) training programmes, as well as a shortage in key subject areas (Oireachtas, 2018; Teacher Union of Ireland, 2019). This reduction in supply has led to a ‘crisis’ in teacher recruitment and retention (Harford & Fleming, 2018).

6.7.5 Evidence presented to an *Oireachtas* committee in July 2018 suggested that teacher shortages were likely to grow in Ireland due to the growing secondary school population (Oireachtas, 2018). Furthermore, evidence collected by the Teachers’ Union of Ireland and Principals and Deputy Principals Association indicates that half of the schools in Ireland are struggling with unfilled teacher vacancies in key subjects due to recruitment and retainment difficulties (Teacher Union of Ireland, 2019).

6.7.6 The shortage of teachers in particular subject areas was noted by Sahlberg et al. (2012:20) who stated that "a more effective modelling of the supply and demand for new teachers should be developed as a matter of urgency in the interest of maintaining an adequate supply of high calibre entrants to the profession". As a result, a technical working group was established in 2014, and a supply steering group was set up in 2018. A model to forecast teacher supply has not yet been developed and data in relation to this has not been collected. Some attempts are currently underway to address this lack of data. The Department of Education and Skills (DES) have convened a data group as part of the action plan on teacher supply (DES, 2018) as in the absence of good quality, reliable data it is difficult to establish the full extent of the 'crisis'.

6.7.7 Sahlberg et al. (2012) also noted that often high-performing education systems train their teachers to Master's level. Furthermore, the report emphasised that Ireland lacked a clear approach to research-led teacher education and practice. Therefore, it was recommended that teachers are trained to Master's level: "it was considered that this could be a longer-term aspiration for teacher education in Ireland, either as part of ITE or through programmes of continuing professional development (CPD)" (Sahlberg et al., 2012, p.19). Research concerning the efficacy of the new two-year Master's programme (with the notable exception of the work on school placement i.e. Hall, Murphy, Rutherford & Áinglés, (2018) has yet to be conducted. In the absence of this, anecdotal claims and counter claims are shaping much of the contemporary discourse.

6.7.8 A decision to train to Master's level had already been considered by the DES as a means to improve literacy and numeracy in schools (DES, 2011). Despite the ambitious aims of PME,

Harford and Fleming (2018) argue that insufficient consideration was given to the implementation of this model. Sahlberg et al. (2012) recommended that the Master's level qualification should be a longer-term aspiration as part of ITE or CPD. Harford and Fleming (2018) claim, however, that these recommendations were discounted in preference for a more immediate roll out of the Masters.

6.7.9 It has been argued that the introduction of the new ITE programme "narrowed the entry route into teaching allowing only those who are in the financial position to fund an additional year of educational students to choose to become teachers" (O'Doherty & Harford, 2018, p.659). Furthermore, the changes made increased the length of time to qualify as a secondary teacher to 6 years. It has been suggested that these factors contributed to 1,000 fewer teachers enrolling onto the postgraduate PME route in 2015 compared to the previous year (Harford & Fleming, 2018).

6.7.10 While the reconceptualization and extension of the ITE programmes in Ireland has arguably contributed to teacher recruitment issues, the programme was set up to improve the quality of teacher education. The extension of the programme has "led to a detailed articulation of the optimal design and content of programmes […] as well as and enrichment of both the duration and nature of school placement within the programme" (Harford & O' Doherty, 2016, p.44).

6.7.11 The Sahlberg et al. (2012) report emphasised the need for stronger partnerships between universities and schools stating that while teacher education should be facilitated in universities, there should be "systematic links to clinical practice in field schools which

provide where possible for the full range of sectoral teacher education" (Sahlberg et al. 2012, p. 25). As a result, those on a 4-year UG placement now spend 25% of their time on placement, whilst those on a 2-year PG placement spend a minimum of 40% of their time on placement. Furthermore, while on placement all student teachers must have a co-operating teacher who, along with the university, supports them in their professional learning. The student teacher and co-operating teacher are expected to work together to co-plan and co-teach with the co-operating teacher observing and providing feedback (Harford & O'Doherty, 2016).

6.7.12 In 2011, teachers' salaries were cut for new entrants and a range of financial allowances while studying were also removed. While steps have been made to improve the pay for new entrants to the profession, on average, post-2010 entrants to the teaching profession earn €4,000 less (annually) than a 2010 entrant with the same qualifications and experience (O'Brien, 2018). This has escalated the problem of teacher shortages (Lahart, 2018). Consequently, Harford and Fleming (2018) argue that restoring the common basic salary for teachers is essential in order to address the current shortage of teachers.

6.7.13 A further issue in teacher recruitment in Ireland is that the teaching body is largely homogenous, even though Ireland has undergone significant demographic changes in the last 10 years. In an analysis of the composition of primary student-teachers, Heinz and Keane (2018) found an under-representation of males and those from minority national and ethnic backgrounds. Furthermore, Roman Catholics are over-represented in the student-teacher population. Consequentially, the teaching population does not match the diversity in the Irish population. This is an issue, as a diverse and representative teacher population can benefit

minority students as teachers can be 'cultural translators' and 'role models' (Keane and Heinz, 2016).

6.7.14 In summary, at post-primary (secondary) level several compounding factors have contributed to the present situation:

- A shortage in specific subject areas that had been highlighted for a number of years prior the current 'crisis' (Sahlberg et al., 2012).
- The introduction of the two-year Masters programme that has extended the duration of a teaching qualification to up to 6 years (from undergraduate level).
- Changes in teachers' renumeration leading to lower pay for newly appointed teachers (O'Brien, 2018).
- The move towards ensuring that all teachers have third level qualifications in the subjects they teach in schools (Department of Education and Skills, 2017).

Several initiatives have been put in place in response to the current 'teaching crisis' in Ireland (Department of Education and Skills, 2018).

ACTION- What is being done about these challenges?

The following section describes some of the immediate actions taken in Ireland to address the teaching shortage. Furthermore, longer term improvements to professional development will also be discussed.

6.7.15 In November 2018, an action plan[23] was published to tackle the teacher supply issues. This includes 22 separated measures. Key actions included ensuring that "4-year concurrent post-primary [secondary] ITE programmes are in place for 2019/20 which qualify teachers in two subject areas" (Department of Education and Skills, 2018, p.2) thus reducing the time it takes for students to qualify as a secondary teacher from 6 years to 4. Furthermore, the capacity on both undergraduate and postgraduate programmes in shortage areas will be increased. Further grants were also introduced to support teacher supply and the number of days a teacher can take on a career break will be increased (Department of Education and Skills, 2018).

6.7.16 In order to address the supply pressure at primary level, the Minister of Education has recently announced (22 April 2019) the creation on substitute teachers' panels for schools in urban and rural areas[24]. The pilot scheme will create positions for supply teachers who will be hired on full-time contracts. Each teacher will be based in one school and rotate among up to 15 other schools as part of cluster. Each supply panel cluster will consist of 10-15 schools with 2-3 teachers assigned to each panel on a full-time basis (Department of Education and Skills, 2019). It is hoped that this scheme will help staff shortages, reduce the administrative burden of finding substitute teachers and improve access to high-quality, reliable substitute teachers.

6.7.17 A further new initiative has been launched to enable secondary schools to share teachers from 2019/20[25]. Under the plans set out by the Minister of Education, schools can

[23] https://www.education.ie/en/Publications/Education-Reports/teacher-supply-action-plan.pdf
[24] https://www.education.ie/en/Press-Events/Press-Releases/2019-press-releases/PR19-04-22.html
[25] https://www.education.ie/en/Press-Events/Press-Releases/2019-press-releases/PR19-02-25.html

partner to employ a teacher in a base school. The teacher's time will be split between the base school and another school. By sharing teachers, shortage subject areas, such as STEM, modern languages, Irish and home economics, the scheme aims to address subject specific teacher shortages. Furthermore, the scheme allows teachers, who might otherwise not have full-time hours, to access more teaching. Schools can offer a broader range of subjects to students and cover provision in shortage subjects. It is hoped that the scheme will also enable the sharing of best practice between schools (DES, 2019).

6.7.18 Universities and colleges have aimed to address the lack of diversity in Ireland's teaching force through a number of initiatives directed at those who have been traditionally been under-represented in teaching. In 2017, The Higher Education Authority (HEA) allocated €2.4 million for new initiatives to widen access to initial teacher education. These initiatives are aimed at those from disadvantaged groups who traditionally have been under-represented in teaching (HEA, 2015). The objective of the initiatives is to increase the number of students from underrepresented groups entering initial teacher education. A broader aim of the initiatives is to provide young people with access to role models from minority groups and to demonstrate that there are pathways for them to realise their potential through education[26].

6.7.19 As a result of this HEA funding different initiatives are now in place in HEIs. Examples include, University College Cork's 3-year funding initiative called *New Avenues to Teaching (NAT)*[27]. This initiative aims to improve equality of access to under-represented groups by

[26] https://www.education.ie/en/Press-Events/Press-Releases/2017-Press-Releases/PR17-04-17.html
[27] https://www.ucc.ie/en/education/nat/aboutnewavenuestoteaching/

providing scholarships and bursaries[28]; running a junior teaching programme to recruit and support teachers from target groups; and, provide a dedicated NAT project officer who provides personal support to trainee teachers while they study.

6.7.20 The Access to Post Primary Teaching project (APT) (Keane, Heinz & Lynch, 2018) at NUI Galway and St Angela's College is another example of a HEI response. In this case the initiative offers financial and academic support to PME applicants and students who entered university through a pre-entry access programme, or a Higher Education Access Route[29]. Those who are enrolled through this scheme are required to be participants in the wider research project investigating teachers' motivations and experiences.

6.7.21 Additionally, Maynooth University have recently launched the *Turn to Teaching programme*[30]. This offers a foundation year for those in unrepresented groups who are considering teaching. They also run a *Rising Teachers, Rising Leaders*[31] project which works with schools to raise teaching aspirations alongside working with teachers from unrepresented groups to provide them with enhanced CPD options to support their leadership capacity. Furthermore, students on both programmes receive tailored Irish language support to help them to reach the level required to teach in Ireland. In addition, Mary Immaculate College run a Teacher Education Access Programme for mature learners[32].

[28] Between €250 and €6000 for students who are a member of one the following groups: students with disability; students from Irish Traveller community; students from ethnic minorities; students from target socioeconomic groups; mature students (UG only); students who are lone/ single parents.
[29] https://www.nuigalway.ie/colleges-and-schools/arts-social-sciences-and-celtic-studies/education/research/linktoprojects/accesstopost-primaryteachingaptproject/
[30] https://www.maynoothuniversity.ie/froebel-department-primary-and-early-childhood-education/turn-teaching-project
[31] https://www.maynoothuniversity.ie/turntoteaching/rising-teachers-rising-leaders
[32] https://www.mic.ul.ie/faculty-of-education/programme/teacher-education-access-programme-teap

6.7.22 Changes have also been made to the probation process that takes place once students have completed their ITE. A pilot programme called *Droichead* was trialled over the period of 2013-2015. Alongside a minimum of 20 hours of professional development workshops, newly qualified teachers (NQTs) are supported in their role by a Professional Support Team (PST) (The Teaching Council, 2018). The PST is comprised of experienced teachers, including a principle and a mentor. The role of the support team is to observe the NQT and provide feedback in formative and summative assessments. For a teacher to complete the NQT stage, a member of the team is required to make a professional decision on whether the teacher has "demonstrated the ability to practice independently as a qualified, fully registered teacher" (Smyth et al., 2016, p.8). Professional development is provided to members of the PST in order to aid this process. This in-school assessment was a significant shift in Ireland as previously decisions about NQTs were made by a member of the inspectorate who observed the teacher twice during their NQT period (Harford & O'Doherty, 2016).

EVALUATION- Is there any evidence for their success?

Much of the work to address the current teacher shortages is only just in place. There have been evaluations, however, of some the longer-term projects.

6.7.23 The changes to the ITE system which include an increased emphasises on placement, have been recently reviewed (Hall et al., 2018). This evidence suggests that:

> ‘the student placement is a deeply meaningful professional experience for the vast majority of student teachers who report that they felt competent and confident about it and feel well prepared. It is the major vehicle for the integration of theory and practice’ (Hall, et al., 2018, p. 12).

6.7.24 The review also highlights that school-HEI partnerships are hampered by the uncertainty and unpredictability of securing places. Student-teachers are often responsible for securing their school placement. Therefore, the review recommends that a more formal system, whereby all schools are part of ITE, should be put in place in order to connect schools with ITE providers (Hall, et al., 2018).

6.7.25 Also student-teachers are being ‘over-asked’ to reflect on their practice which, for some, is perceived as overwhelming (Hall, et al., 2018, p.13). Therefore, the report recommends that co-operating teachers should be offered more support to prepare them for this role.

6.7.26 The *Droichead* programme was also reviewed (Smyth et al., 2016). Evaluation evidence showed that there were high levels of satisfaction with the programme among both the Professional Support Team and the NQTs, Furthermore, NQTs in the pilot project reported lower levels of stress and higher levels of confidence than those not on the scheme. As a result, following the pilot scheme, *Droichead* was phased into schools on an ‘opt-in’ basis, and will be the route to induction for all NQTs by 2020/21 (The Teacher Council, 2018).

Summary

Ireland has put in place several initiatives to address their teacher shortage problem. While there have been positive steps forward in the restructuring of ITE that include the "optimal design and content of programmes" (Harford & O'Doherty, 2016, p.44), the extension of the programme, along with uncertainty around pay are argued to have had a negative impact on teacher recruitment (Harford & Felming, 2018; O'Doherty & Harford, 2018).

7.0 Conclusion

7.1 This international review of the literature has shown that there is widespread concern about the shortage of secondary school teachers in many countries. Recruitment to initial teacher education, in many education systems, is simply failing to meet its intake targets. Despite considerable investment in a wide range of initiatives, costing millions of dollars or pounds, this review has found that many governments around the world are still facing considerable teacher supply challenges, that are most acute in rural contexts or in areas of high deprivation.

7.2 This review has highlighted that teacher shortages remain a global concern. As this review has revealed, many European countries, Australia and the USA continue to report serious shortages of teachers. Widespread media reports of teacher shortages in many countries (e.g. Boffey and Helm 2015; Passy 2018; Strauss 2016) continue to make headlines in the media.

7.3 Various economic and employment cycles, which make teaching a less attractive career, have been cited as being behind as the main reason for the prevailing shortage of teachers in many countries (Ingersoll 2011; Hutchings 2011; Dee and Goldhaber 2017). Relatively poor pay, a heavy workload and low public confidence are regularly given as the main reasons for endemic teacher shortages in certain contexts (Borman and Dowling 2017; Hayes 2017; Eteach 2018; Foster 2018). This international review suggests, however, that there are other factors that are of equal importance.

7.4 Financial incentives to enter teaching, in various countries, have included bursaries, loans and scholarships particularly for the shortage subjects. In addition, strategies to reduce teachers' workload have been introduced which include mentoring and tutoring programmes aimed at supporting and retaining teachers. In Singapore, a robust and extensive mentoring programme is cited as one of the main reasons for the over-supply of teachers into the profession along with the guarantee of a job, free training and a clear career structure.

7.5 In terms of the impact of financial incentives, the available evidence reviewed in this study shows that these have not been systematically evaluated and independent evidence of their impact is limited. Most often, the introduction of such financial incentives is based on recruitment figures that signal a down-turn in supply hence requiring an immediate and effective response.

7.6 This review suggests that financial incentives may be treating the symptoms rather than the cause of under-recruitment into teaching. As the country case studies show there are a complex set of inter-related factors that heavily influence decisions to enter the teaching profession e.g. teachers' pay and conditions, financial incentives for recruitment, changes in education policies, the status of teaching, professional learning and career advancement opportunities, class size, teacher-pupil ratios, job availability and increases in tuition fees for higher education.

7.7 It has been suggested that the prevailing shortage of teachers, in different countries, may not be just a lack of individuals entering (or staying in) the profession. Rather, that the

problem may be the over-reliance on an 'imperfect teacher demand and supply model' that restricts numbers into teaching (See and Gorard, 2018:10). Moreover, it is suggested that higher entry requirements into teaching, the diversity of routes into initial teacher education in certain countries and the increasing cost of training remain significant barriers to entry. It also calls into question the wisdom of restricting numbers into initial teacher education as part of workforce planning. Evidence would suggest that the restriction of numbers is a blunt and largely, ineffectual instrument to effectively manage teacher supply (See and Gorard, 2018).

7.8 As this international review has shown, the issue of teacher supply is highly complex with many influences and antecedents. While financial incentives into teaching are often the stock response to teacher supply problems, the fact remains that the impact of such incentivisation is far from clear or empirically established.

7.9 In summary, this review has shown that the decision to enter teaching has multiple influences that combine to affect supply:

a) structural considerations- increases in class sizes or pupil: teacher ratios, changes in the curriculum and reduced school funding;

b) financial considerations - salary and remuneration levels, ease of getting a job, promotion prospects;

c) professional considerations -status of the profession, opportunities to upskill (to a Masters or PhD), robust support mechanisms and guaranteed career pathways;

d) personal considerations -location, family considerations, making a difference to young people and holidays.

7.10 Other important factors affecting entry into the profession include the level of entry requirements for teacher education, the cost of training and the guarantee of a job once the teaching qualification has been secured. Robust and extensive induction and mentoring programmes, following initial teacher education, are also a critical factor in retaining teachers and building professional capacity within the education system.

7.11 In summary, this research has found that financial incentives alone may not always be the most effective strategy to increase teacher supply but that there are other important considerations outlined above (7.9 and 7.10) Potentially, improving the working conditions of teachers, establishing a clear career pathway and offering higher degree options, as part of the professional learning offer, could make teaching a much more attractive profession and one that more highly qualified graduates might consider.

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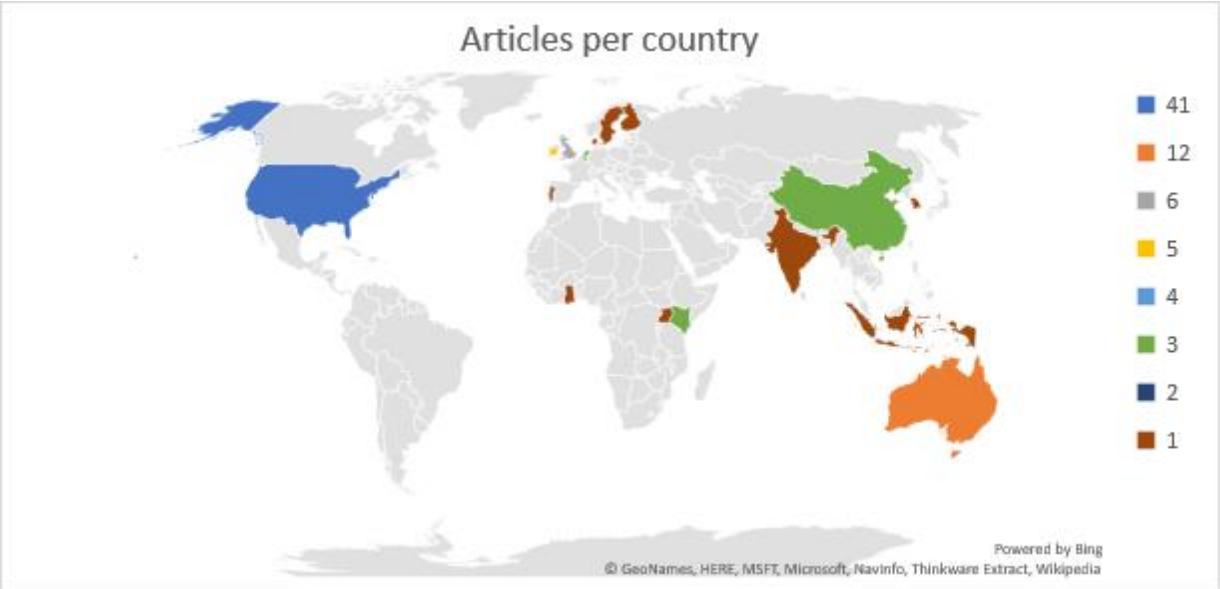
Total	93

Summary of figures

- Total number of retrieved articles based on keywords is 93
- Total number of articles that do not specify a country as a study context is 4
- Total number of countries that have been included in this report is 19
- Note: Denmark & Finland and Portugal & Sweden, each country has a joint article

Charts


Articles per country
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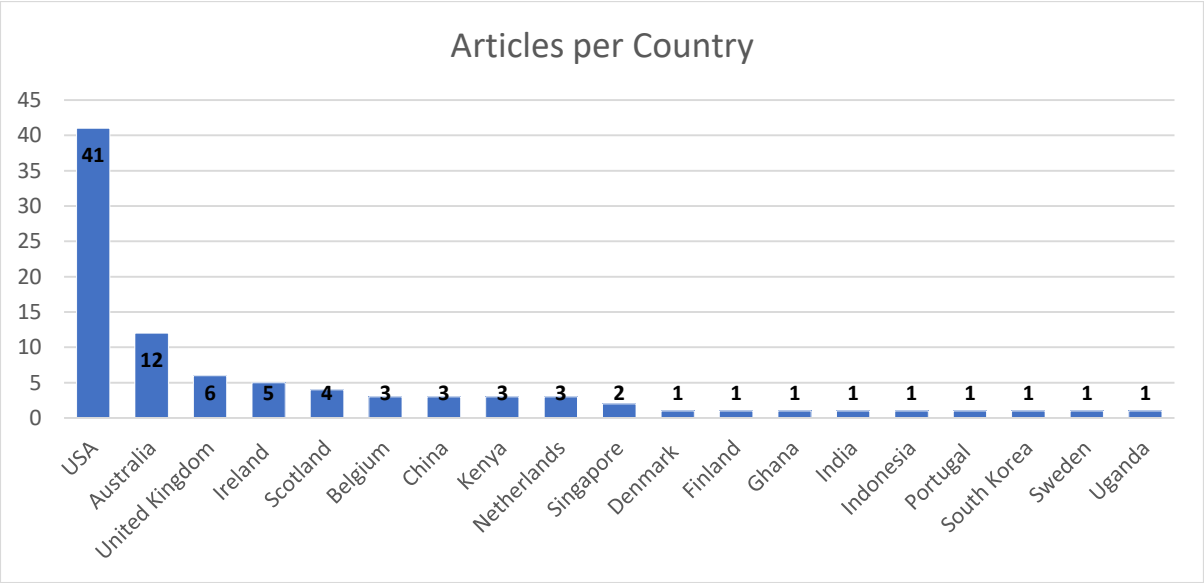
Articles per Country
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Portugal
South Korea
Sweden
Uganda

8. Disclosure statement

No potential conflict of interest was reported by the authors.