STEM Teacher Recruitment Campaign Initial research review and strategic considerations





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Summary campaign brief

The problem: There are/will be shortages of STEM teachers in Scotland

The aim: To recruit more people into STEM teaching in Scotland in the coming years

The objectives: (To be fully defined, quantified and agreed)

- To see a positive change in perceptions of (STEM) teaching as a career option amongst our key audience
- To see an increase in those who might consider STEM teaching as a career amongst our key audience

STEM Defined: Science (Chemistry, physics, biology), Technology (craft and design technology &

computing), Engineering and Maths.

STEM focus: Maths, Physics, Chemistry, Computing and Engineering

Summary campaign brief

Audiences for consideration

- Students currently studying STEM-related subjects at university
- People working in STEM-related industries seeking a career change
- Qualified teachers in England, Ireland, Wales and Northern Ireland who are considering a lifestyle change

Influencer audiences

Careers advisors (University, school and industry)

Insight gathering introduction

Existing research as well as insights and learning from other activity gathered and reviewed to help inform strategy

Our insight gathering must serve to:

- Help fully understand the problem and quantify it if we can
- Identify where there is greatest propensity amongst audiences, and if there are quick wins
- Help us understand perceptions, attitudes, barriers and motivators held by audiences
- Identify potential propositions/creative territories to present STEM teaching as credibly desirable
- Inform recommendations on our campaign approach, timings, strategy and tactics
- Provide a view on any longer-term activities that should be considered beyond year one
- Identify gaps in research, data or insight

POSITIVE INTERACTIONS <+>

Overview and summary

Summary findings

- X Teaching as a career is undersold at universities and suffers from being the 'poor cousin' of other careers across all audiences.
- X There are already programmes targeting career changers and this route is unlikely to be efficient or bring on the best teachers
- x The market is competitive across the UK and on campus
- x Career choice is a considered decision choices are influenced and built over time but there are key milestones to be considered
- ✓ A segment of the population is well-suited to teach. Teaching is much more about a suitable set of values than the a set of pedagogical competencies.
- ✓ Interest in science/technology does not equal a pre-disposition to teaching STEM
- x Those who are ill suited to teach *might* be tempted into teaching if there were the promise of salary and a 'good work-life balance'.

Summary findings

- ✓ So-called 'altruistic' motivators feature large with segments well suited to teaching. 'Altruism' here means intrinsic motivators not extrinsic ones.
- X Barriers and perceptions abound across all audiences: 'horror stories' of stress, workloads, teenagers, lack of recognition – all conspire to put potential teachers off.
- ✓ Contrary to perceptions of teaching being uncreative, Curriculum for Excellence seeks to position the teacher as "interpreter not a deliverer".
- ✓ STEM teachers describe their work as creative, even if they struggle with lack of resources. They describe having autonomy and freedom.
- ✓ Several influential groups/organisations are working to prove that teaching is not onerously bureaucratic.

Summary recommendations

- ✓ The most efficient and effective audience for targeting are current students studying STEM subjects at Scottish Universities
- ✓ Career decisions are not influenced overnight our campaign should build from year 1to3 and a long term strategy put in place
- ✓ Most focus should be on and around campus with students and career advisors/lecturers
- ✓ Campaign should run year round but there should be key date up-weights
- ✓ The campaign must be multi channel face-to-face, experiential, events, advertising, social, digital, pr, engagement, etc
- ✓ Without further research we do not recommend targeting career changers or teachers from elsewhere in the UK at this time
- ✓ Messaging around 'altruistic' drivers including 'giving back' and 'making a
 difference on people's lives' are most likely to be effective

Considering the audience opportunity

Qualified teachers from England and Wales

- England's teacher shortage is also at a critical point and getting worse
- TeachFirst.org suggests deficit of STEM graduates is 40,000 under what is needed for teaching in England
- Secondary schools spent an estimated £56m on advertising for vacant posts last year an increase of 61% on 2010
- Bursaries of up to £30,000 are being offered for certain teaching roles
- Education.gov and individual schools have active overseas recruitment drives

Facebook advert to teach in remote Highland school draws interest from India to Canada

However, life in the the tiny settlement of Scoraig won't suit all

Qualified teachers from the rest of the UK

Separate strategy required promoting lifestyle choice – but more research required Consider a small test via teacher recruitment portal when messages have been agreed

More likely to appeal to new teachers, or those later in their career – life stage matters

Potential lifestyle benefits

- Cost of living
- Outdoor lifestyle, beautiful landscapes, rich culture and history (easy access to city/country)
- Community spirit if smaller/rural location
- Smaller class sizes if in a rural location
- Able to invest more time in the students
- High student retention
- More support/tighter team in smaller schools and communities
- Possible relocation packages

Career changers – focus on oil and gas

- Transition into Education programme already underway
- 20 individuals recruited via SDS (Skills Development Scotland) for STEM PGDE
- Need to assess methods, impact and success
- What relationship with this campaign?
- Excepting forced career change because of redundancy - more likely to appeal early in career rather than established



Career changers (oil and gas focus)

But teaching not the first choice for most







Quantifying the problem

The numbers

72

STEM vacancies
currently being
advertising in
Scotland out of a
total of 200 teaching
vacancies

Most impacted region:
Aberdeenshire (12),
Edinburgh (12) and North
Aryshire (9)
Highest subject demand:
Maths (25), Tech (20),
Biology (9) General
Science, Physics &
Chemistry

269

Intake of STEM
PGDE students in
2015 out of a total
of 991 students

Across 8 Universities covering: Biology, Chemistry, Computing, Maths, Technological Education.

Of these only Biology intake is achieving target

378

2015 HEI target for STEM PGDE study

Cers: Biology, Chemistry, Computing, Maths, Technological Education

For 2016/17, the target for total student intake for teacher training is 3,490. **1,350** of those being the target for PGDE Secondary training.

19,750

Total number of STEM undergraduates due to qualify from Scottish Universities 2017/2018

Across 14 Universities
Covers: Biological Science,

Physical Science,

attrition/drop-out

Mathematical Science,
Engineering, Computer
Science Technologies,
Creative arts and Design,
Education, Combined
Science, Science with
Social Studies
Does not include

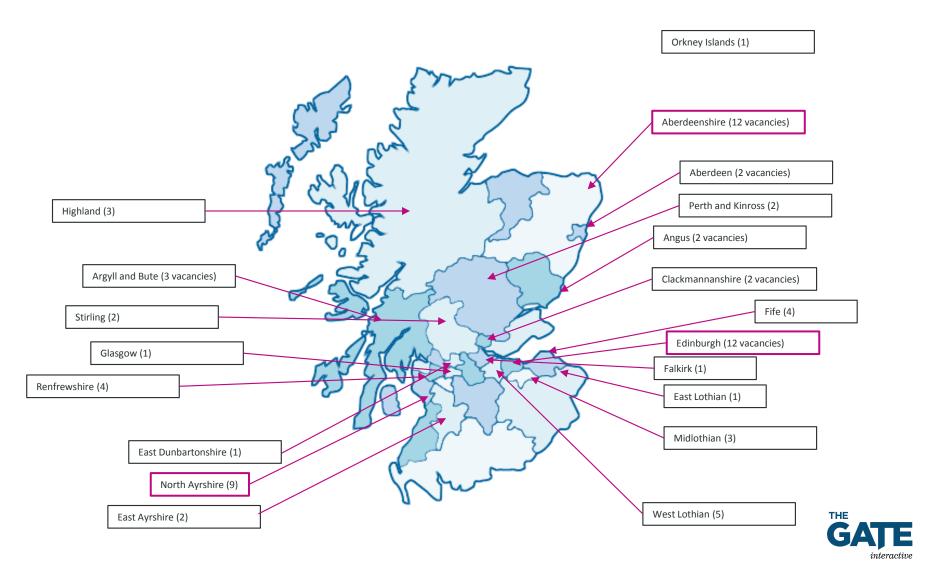
10-14,000

Total number of target STEM undergraduates due to qualify from Scottish Universities 2017/2018

Across 14 Universities

Covers: Biological Science, Physical Science, Mathematical Science, Engineering, Computer Science Technologies, Combined Science, Science with Social Studies Does not include attrition/drop-out

Job vacancies - the numbers



Considering the desk research in the wider context



70% of teachers do an 'all-nighter' to prepare for lessons (according to a survey for a teaching magazine which concludes they put in more hours than the rest of us)

- Only directors of mining and energy firms worked harder than teachers, survey find.
- Teachers worked on average 48.3 hours a week far outstripping other professions including barristers, doctors, managing directors

By TOM GARDNER

PUBLISHED: 12:10, 14 June 2012 | UPDATED: 12:37, 14 June 2012

Six teachers on a typical workday

Do they really leave work at 3.30pm? What about those long school holidays? How much time is spent in the classroom? Six teachers reveal the truth about their working hours

This is what a day in the life of a teacher actually looks like

Duncan Lindsay for Metro.co.uk Thursday 28 Jan 2016 11:01 pm

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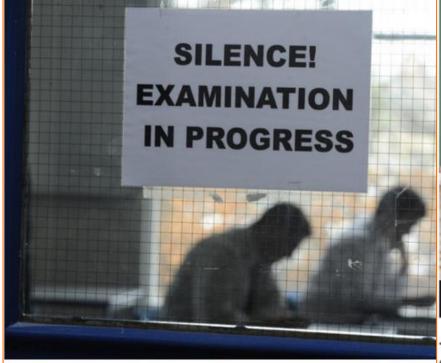


Six hour days. Too many holidays. Free weekends. You mad bro?

Scots teachers explore industrial action over workload



Teachers 'angry' over new By Hannah Richardson BBC News education and social affairs reporter National exams



Teachers are growing increasingly angry over the new exams. Picture: Phil Wi

Scots teachers 'stressed out' by severe workload



O 2 hours ago Education & Family F 103

Share



Teachers often feel weighed down by marking

Teacher Megan Quinn says she works a minimum of 56 hours per week - not to mention a few more on marking and lesson preparation.

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£300 million cut to Scotland's schools after SNP targets councils

A new report finds local authorities have cut school budgets by seven per cent more than inflation over the past five years, in response to reductions in their funding from the Scottish Government.















Scottish councils have cut education spending by £300 million. Photo: Alamy



Scottish schoolkids left to use bookies' pens as education cuts start to bite

Written by Reporter, 31/10/2015

TEACHERS are resorting to handing out bookies' pens to pupils because there isn't enough money to buy basic supplies.

A Sunday Post probe has revealed councils have slashed the amount they hand to headteachers by £64 million over the past five years.

in one local authority primary schools have just £1 per pupil per week to buy necessities such as jotters, textbooks and pencils.

heraldscotland



'Dear Mr Salmond, how do teachers like me get a job?'



experience: Christopher Venditozzi, 38, says he is part of what is fast becoming a lost generation of teachers in Scotland, Picture: Nick Ponty

8 Nov 2012 / Andrew Denholm, Education Correspondent













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'Schools could close' as Aberdeen's teacher shortage crisis deepens



Aberdeen has been rocked by the downturn in the oil and gas industry

10 Jun 2016 / Jody Harrison, Reporter / 9 @JodeHarrisonHT















A big challenge in promoting STEM teaching will be a fight between communicating its real benefits and rewards in the face of 'bad news' stories, the battle for scarce resources and pedagogical trends, which capture people's attention

TMP report commissioned to inform "Inspiring Teachers" Campaign Jan 2015 Key findings

Undergraduate STEM students

(were in current final year at time of focus groups)

Barriers

- Teaching a subject to pupils with no interest -'have' to be in class
- Perceived as "intellectual step down/step back"
- Bound by curriculum and repetitive - little room for creativity or development
- Rotas, curriculum, auditing restrict freedom within the subject
- Is knowledge (engineering) deep enough to teach maths or physics
- Seen by most as a fall back option not a first choice

Key points

- Teaching suffers from extremely poor presence on the University careers fairs
- Poor presence gives rise to low consideration
- Made worse by slicker corporate competitors
- Need to challenge misperceptions
- Teaching needs to show the real impact you can make / truly satisfying

Motivators

 Making a difference with children is very motivating

Source: TMP Report Jan 2015

University careers advisors

Barriers/Perceptions

- Major employers dominate on campus – students think opportunities are narrower than they are
- No single body flying the flag for STEM teaching on campuses
- Low presence/ awareness with advisors - questions and misunderstandings remain unaddressed
- Proactive employers engage earlier, funnelling them through work internships
- Teaching doesn't 'compete" for talent
- Engineering students see first choice of career as engineering
- Teaching not top-of-mind

Key Points

- Teaching exists in a competitive marketplace
- Teaching is the 'poor cousin' to other careers
- Teaching must play on the edge of the category: create a more professional image and promise a much more rewarding career

Motivators

 Making a difference with children is very motivating

Source: TMP Report Jan 2015

Competitive on-campus recruitment









Other "teaching" programmes with clearer offering and higher profile



STEM career changers

Barriers

- Teaching a subject to pupils with no interest -'have' to be in class
- Perceived as "intellectual step down/step back"
- Bound by curriculum and repetitive - little room for creativity or development
- Rotas, curriculum, auditing restrict freedom within the subject
- Is knowledge (engineering) deep enough to teach maths or physics
- Seen by most as a fall back option not a first choice

Key points

- Career Changers are passionate about their subject
- The campaign should show how passion comes to life in the classroom

Motivators

- Passion for their subject and concern for its declining future
- Opportunities to experience what it's like to be a teacher before making any commitments
- Reassure teaching offers innovation and 'forward momentum'
- Clarity of information around how to make the transition
- Promote desirability of teachers
- Reach out to recently employed – not entrenched, possibly unsure of fit
- Focus on oil and gas industries in Aberdeen and job losses

Source: TMP Report Jan 2015

Existing STEM teachers in Scotland (encourage to stay in profession)

Barriers

- Fewer resources / cuts doing more with less
- Sense of constant change
- Removal of subject heads (a move to wider 'curriculum leaders') – fewer promotion opportunities and career progression
- Increased competition from commercial world
- Lack of talent for probationary teachers / young teachers leaving the profession
- England perceived as more attractive

Key point

The truth is that STEM teaching is all about the creative experience and reward of pupil engagement

Situation

Improving economy shows a 1% increase in our GDP leads to 1.1% reductions in applicants

1% reduction in graduate unemployment leads to 9.6% decrease in applicants. (DfE analysts)

Leaving rates for existing Maths and Science teachers is higher than average (DOE National Audit Office)

Motivators

- Love for the teaching classroom and pupil engagement not profession
- Discipline not seen as a problem
- Real variety in the role a great challenge
- Importance of link between great STEM teaching and great STEM employees and a strong Scottish economy
- Creativity essential to make it relevant in the classroom/to the next generation
- Real freedom/autonomy in lesson prep and delivery

Source: TMP Report Jan 2015

In addition

Science and Engineering Education Advisory Group 2012 SEEAG

'Curriculum for Excellence is arguably not a curriculum at all in the normal sense. It is at least as much about skills, pedagogy and context as about content, and incorporates additional values and capacities.' 'CfE recognises schools and teachers as the interpreters and developers of the curriculum rather than simply the deliverers.'

These changes will require a cultural change in the profession'

The modern Scottish STEM teacher is not one restricted to their subject capable of interpreting, connecting, creating and communicating. They must be creative, resourceful and clever.

Curriculum for Excellence Working Group on Tackling Bureaucracy

"I have chaired the Group and our message is clear: the purpose of CfE is to promote better teaching and learning. This must not be obscured by bureaucracy and unnecessary paperwork. That is unacceptable and needs to stop now.'

Dr. Alasdair Allan, Minister for Learning, Science and Scotland's Languages

There is a concerted effort underway to combat bureaucracy (SQA, Education Scotland, authorities) are making efforts to reduce bureaucracy.

Teaching - "The World's Happiest Jobs" The Guardian survey 2015

Perceptions contradicted by research with teachers

Young people are great to work with. They have humour, intelligence and generally want to make the world a better place."

'What makes you so happy? "The light bulb moments – watching children make leaps in learning,"

"When they're looking confused or lost I know what it means to not understand what is going on around them. I like to think I am making a difference to their education and I enjoy seeing them achieve their potential."

"Knowing that you've helped make a difference to that child and that family is tremendously rewarding." [Pages 34 - 50 redacted]

Campaign recommendations

Campaign Recommendations

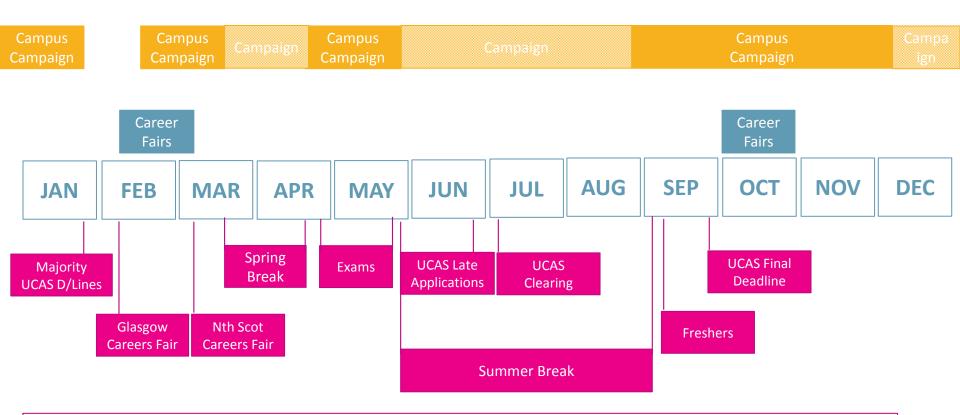
Audience targeting

- Initial campaign target should be STEM undergraduates
- Activity should target year 1-3 but with core focus on year 3
- Focus (via messaging) on those most predisposed to teaching
- Don't waste effort on those not interested

Campaign timing

- Campaign should have year round presence with key date up-weights
- Launch in spring for campus career days up-weight again in October
- This will mean trade-offs in year one on numbers and quality BUT applications will be open for STEM PGDE opportunities because of low application rates AND PGDE may become an option for some

Campaign Key Dates 2017



Universities accept late applications in some subjects including Maths, Physics, Computing and Technological Education because of low application/acceptance rates.

Campaign approach and structure

- Significant "professional" on campus focus
 - Advertising
 - Face to Face
 - Experiential
 - Digital
- Engagement with Universities and Career Advisors and lecturers (as key channel)
- Teachers carriers of the message
- Active participation in Career Events and Career Days
- Strong digital presence web hub, rich content, interactive experience, paid search
- PR/Media Relations
 - Counteract misperceptions
 - Positive case studies

Positioning, proposition and messaging recommendations

Perceptions of STEM teaching should be shifted

From

- Teenagers are trouble
- The kids don't want to be in school and disrespect you
- Teaching is rigid, uncreative
- Teaching is long hours for low pay
- Teaching is a poor second best
- Teachers lack authority
- STEM teaching will not see me develop in my subject
- Teaching doesn't confer on me the status I want

To

- Teachers earn true respect
- Teaching is far more rewarding than many careers
- Teaching is very creative and teachers must be resourceful
- Teachers are vital to our society and have great impact
- Teaching has an exclusive cachet only certain people are good enough

We must position STEM teaching in our campaign as

- Intrinsically meaningful and deeply rewarding for people who want a rich career seeing others progress
- Slicker, more professional, whilst promising a much more rewarding career
- Esteemed as a challenge BUT only for people who are 'good' enough not just anybody
- Different from other careers that are desk bound, non-social, sedentary, introvert

Herzberg's 2-factor theory

Required to make a job satisfying

Sense of challenge, peer-group recognition, belief that one's work is meaningful, autonomy, sense of achievement

Required to make a job tolerable

status, job security, salary, other fringe benefits, bonuses, work conditions, paid insurance, holiday, environment Communicating to our audience about the benefits that make a job satisfying will be more powerful than erring on the side of benefits that make a job tolerable.

This "Inspire and Reassure" approach was effectively utilized by the NCTL campaign south of the border.

Motivating themes for potential STEM teachers

IMPACT

LEGACY

CREATIVITY & AUTONOMY

ACHIEVEMENT

FULFILLMENT

Propositional routes for creative exploration

TEACH STEM Good teachers change lives.

TEACH STEM Are you good enough?

TEACH STEM

Make a difference

every day.

TEACH STEM
Bring more
meaning to life.

Campaign Research requirements

- Testing of propositions/creative routes
- Benchmarking of perceptions and consideration with key audience

Based on recommendations we would look for post campaign targets :

- Perception shift in year one, (minimal application increase)
- Perception, consideration and application shift in year 2
- More significant consideration and application shift in year 3



Appendix

Campaign development calendar - next steps

Date	Project stage	Key dates
10 Oct		ScotGrad Graduate Recruitment Fair (12 and 13 th).
17 Oct	Present to Policy	Dundee University Careers Fair (6 October).
24 Oct	Approval of recommendations - dev and approval of creative brief	Stirling Career Fair (19 October).
31 Oct	Creative development (The Gate).	
07 Nov	Creative development (The Gate)	
14 Nov	Creative review and approval	
21 Nov	Creative testing (TNS)	Graduation
28 Nov	Creative testing (TNS)	Teaching ends, revision (Edinburgh)
05 Dec	Research Feedback	Exams (Edinburgh)
12 Dec	Campaign development	1st Semester term closes (Uni of Aberdeen – Glasgow – Dundee)
19 Dec	Campaign development	1st Semester term closes (Edinburgh)
26 Dec		Xmas holidays
02 Jan	Campaign development	Xmas holidays
09 Jan	Campaign development	2 nd Semester term (University of Aberdeen–Glasgow)
16 Jan	Campaign Development	2 nd Semester term (Dundee-Edinburgh)
		Deadline for majority of UCAS apps.
23 Jan	Campaign Development	
06 Feb	Soft Launch at Glasgow Careers fair	Glasgow Uni Careers Fair (8 Feb 2017) United Teaching and Teach First.
13 Feb	Campaign	
20 Feb	Campaign	
27 Feb	Campaign	
06 Mar	Campaign	North Scotland Graduate Recruitment Fair (UoA and RG University)
13 Mar	Campaign	
20 Mar	Campaign	Second Semester term ends (Aberdeen – Glasgow)
27 Mar	Campaign to spring break	Spring break

Campaign calendar – key dates week commencing

Date	Project stage	Key dates	
10 Oct		Career Fairs:	ScotGrad Graduate Recruitment Fair (12 and 13 th).
17 Oct	Present to Policy		Dundee University Careers Fair (6 October).
24 Oct	Develop and approve campaign and creative brief		Stirling Career Fair (19 October).
31 Oct	Creative development (The Gate).		
07.11	6		
07 Nov	Creative development (The Gate)		
14 Nov	Creative review and approval	Considerations	
21 Nov	Creative testing (TNS)	Graduation	(51)
28 Nov	Creative testing (TNS)	reaching ends,	revision (Edinburgh)
05 Dec	Review findings - creative dev	Examinations (Edinburgh)
12 Dec	Campaign development	1st Semester te	erm closes (University of Aberdeen – Glasgow – Dundee)
19 Dec		1st Semester te	erm closes (Edinburgh)
26 Dec		Xmas holidays	
02 Jan	Campaign development	Xmas holidays	
02 Jan 09 Jan	Campaign development	2 nd Semester term opens (University of Aberdeen–Glasgow)	
16 Jan	Campaign Development	2 nd Semester term opens (Onliversity of Aberdeen—Glasgow) 2 nd Semester term opens (Dundee-Edinburgh) Deadline for majority of UCAS apps.	
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25 Jan	Campaign Development		
06 Feb	Launch at Glasgow Careers fair	Glasgow Unive	ersity Careers Fair (8 Feb 2017) with United teaching and Teach First.
13 Feb	Campaign		
20 Feb	Campaign		
27 Feb	Campaign		
06 Mar	Campaign	North of Scotla	and Graduate Recruitment Fair (UoA and Robert Gorden University)
13 Mar	Campaign		The desired and the second sec
20 Mar	Campaign	Second Semest	ter term ends (Aberdeen – Glasgow)
27 Mar	Campaign to spring break	Spring break	2 2 (1 2 2 2 2
_, ,,,,,,,	campaign to spring break	Shiiip picak	

Campaign calendar – key dates week commencing

Date	Project stage	Key dates
03 Apr		Spring holiday
10 Apr		Spring holiday starts (Dundee)
17 Apr		Summer term opens
24 Apr		First written exams (UoA – Glasgow)
01 May		Exams start (Dundee)
08 May		Exams
15 May		Exams
22 May		Summer term closes (UoA – Glasgow)
29 May		Summer holiday start (UoA, Glasgow, Edinburgh, Dundee)
05 Jun	2 nd flight in build up to UCAS late applications	Summer holiday
12 Jun	Campaign	Summer holiday
19 Jun	Campaign	Summer holiday
26 Jun	Campaign	UCAS deadline for late applications (30 June).
03 Jul		UCAS clearing opens. Vacant positions re-advertisied
10 Jul		
17 Jul		
24 Jul		
31 Jul		
07 Aug		
14 Aug		
21 Aug		
28 Aug		
04 Sep	3 rd flight in build up to UCAS clearing deadline	Freshers' week (Dundee – Edinburgh – Stirling)
11 Sep	Campaign	Fresher's week (Strathclyde UWoS) First Semester starts (Dundee)
18 Sep	Campaign	Fresher's week Aberdeen. UCAS - Final deadline for 2017 application

Inventory of desk research under review

- 1. [Redacted]
- 2. Curriculum for Excellence Tackling Bureaucracy 2015
- 3. [Redacted]
- 4. [Redacted]
- The TE of STEM Recruitment Issues 2014
- 6. Moments of Choice Behavioural Insights Team
- 7. Teacher Workforce Planning Statistical Modelling 2015
- 8. 2015 HEI Enrolment Figures PGDE & PG Teacher Workforce Planning Modelling
- 9. Teach in Scotland The Scottish Government 2014
- 10. End of Cycle Report Ucas 2015
- 11. The Learned Societies Group on STEM Education May 2016
- 12. GTC Memorandum on Entry Requirements to Programmes of Initial Teacher Education in Scotland
- 13. The Royal Society The UK's science and mathematics Teach workforce state of the Nation 2007

- 13. Science and Engineer 21: An Action Plan for Education OCSA 2011
- 14. What Motivates People to Become Teachers Australian Journal of Teacher Education 1994
- Supporting Scotland's Stem Education and Culture Science and Engineering Education Advisory Group (SEEAG) – January 2012
- 16. Evaluation of the impact of the Implementation of Teaching Scotland's Future Children Education Skills Scottish Government 2016
- 17. Parental Influence on Children's academic and employment choices GTI Media 2014
- 18. Teaching Scotland's Future Report of a Review of Teacher Education in Scotland Scottish Government 2011
- 19. Teaching Scotland's Future Report to Cabinet Secretary for Education and Lifelong Learning Scottish Government 2012
- 20. Training new Teachers Department for Education Feb 2016
- 21. Media analysis
- 22. Interviews with key stakeholders