

Improving Gender Balance
Gwella Cydbwysedd Rhwng y Rhywiau



IGB Wales

Interim Report - September 2020

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1. Introduction

The Improving Gender Balance (IGB) project in Wales is funded by the Welsh Government and managed by the Institute of Physics. The project explores and challenges limitations on young people's choices and aspirations, and the role played by gender.

Each participating school benefits from the support of a dedicated IOP Coach, who devises a bespoke programme to address gender balance in the school, increase motivation and improve student outcomes.

Research indicates that gender imbalance in the take-up at A-level physics reflects wider problems that limit young people's choices and aspirations. The Institute of Physics has led the work in this field with a number of projects and influential reports. The IGB programme builds on this research and findings.

The pilot project started on 1 April 2019 and was due to conclude its first year on March 31 2020. The extension to funding was confirmed just as schools were closed to most students. Following a COVID related funding cut, the second year of the pilot project was reduced in scope.

This report for the period 1 April – 30 September 2020 includes:

- Work done with our Phase 1 pilot schools April – July 2020
- Recruitment of our Phase 2 pilot schools

2. Delivery

The IGB Wales pilot project delivery across three school terms, the following activities were undertaken during the three terms:

Term 1: Needs Analysis Assessment, on an individual basis, of each school.

This was achieved through staff interviews, staff, community, and pupil focus groups; pupil pursuit and classroom observations; assessment of displays and school data; alongside assessment and STEM teaching and visibility in school. This culminated in a bespoke Findings Report and Action Plan for each school. Within each action plan, additional interventions were recommended by the coaches for the school to continue with during the summer term. It was made clear to the schools that should funding for the project continue for a second year, they would be supported by their coaches in this work. If funding was not available, materials would be provided to the school so that they could incorporate the recommendations into their legacy work from the project, to ensure a longer lasting impact from the project.

Term 2: Action Plan Implementation:

The IGB coaches planned to spend approximately half to one day a week in participating schools using the action plans to work with the staff and pupils to implement change. It was anticipated that the schools would receive support with the interventions from the coaches, alongside

recruitment activity being carried out by the central IOP Wales team. For each cluster, it is envisaged that a ‘cluster science week’ would be held - an opportunity to facilitate a Science week linked with the primaries and local businesses. This was to act as a celebration event for the end of the IGB project and a chance to share best practice. The coaches had also planned to work towards helping the school implement the lessons learnt into their policies and ethos, to ensure that the good work continues. This will include providing the methodology to evaluate the impact of interventions and review their data. Planned training included: unconscious bias, training to embed practical science and physics, careers in-context training, working with pupil groups to build confidence in challenging stereotypes, supporting the school in developing STEM clubs and supporting STEM week and/or working with the community to develop stronger relationships that allow for redressing balance across the school. Plans were changed as a response to COVID-19 and the shut-down of all UK schools in March 2020.

Term 3 – Adaptions and extension to delivery:

The outbreak of COVID-19 and subsequent closing of all UK schools, from March 2020-September 2020, resulted in a limited delivery of the project and a heavier, contingency-focused, workload for the teachers. This coincided with the pilot project being extended until July 2020 in order to provide opportunities for staff and other interested parties to engage. All IGB training was undertaken online via video webinar rather than face-to-face and there was no time for teachers to adapt their practice in the classroom in response to the training and support that had been provided by the Improving Gender Balance Team. The proposed work with the school councils or specific pupil groups was also not able to be completed, but advice and support were provided for schools to undertake this work inhouse (via the Legacy Packs – see below).

Training	Number of teachers/pupils trained
TEACHER Unconscious Bias Training – Improving Gender Balance Team	140
PUPIL: Unconscious Bias Training – Improving Gender Balance Team	65 (2 schools)
Boys Don’t Try Training (Webinar) - [Redacted information]	30
Science Capital Teaching Method (Webinar) – [Redacted information]	30
STEM club training – Improving Gender Balance team	12

Table 1: IGB Wales Training

Impact of training full details in the IGB draft evaluation report

Details of participating schools can be found in Annex 1

Full update on pilot project schools can be seen in Annex 5

3. Evaluation of Phase 1 Pilot Project

The baseline evaluation report was published in January 2020 and was issued to the Welsh Government Education team for review. The findings were shared with the coaches, and incorporated into their own findings report and action plans.

The key recommendations fell into four areas as noted in annex 2. The table below denotes where these key recommendations were carried out. Many of these recommendations were bespoke to the individual school. Online training was offered to Clusters between March and July 2020.

Key recommendations can be seen in Annex 3

	Schools								
	[Redacted information]					[Redacted information]			
Key Recommendation	1	2	3	4	5	6	7	8	9
Work with pupils to help them understand stereotypes and help to challenge them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unconscious bias training for teachers and/or students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Embed career opportunities within science classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bespoke training in careers embedding and inclusive teaching – RAEng - Careers Workshop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Strengthen science teaching at primary levels – bespoke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Schools to develop mechanism for reporting sexist language or unfair treatment	<input type="checkbox"/>					<input type="checkbox"/>			
Plan how to balance provision for equal opportunities for boys and girls – Boys Don't Try	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			
School wide workshop at end of project to share learning – Science Resource Workshop	<input type="checkbox"/>		<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>
Engage parents and community to challenge stereotypes – Science Capital Teaching Approach workshop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	
Where appropriate, consider helping school empower parents to feel more confident in physics – STEM Clubs workshop	<input type="checkbox"/>		<input type="checkbox"/>				<input type="checkbox"/>		

Further details regarding engagement of schools can be found in Annex 5

Adaptations to Evaluation : A further result of COVID-19 was an adaptation of the planned evaluation. The planned evaluation consisted of post-project teacher surveys, post-project pupil surveys (year 6, year 9 and year 11) and headteacher interviews. All these methods were postponed due to COVID-19. The comprehensive baseline evaluation was able to provide valuable data for the schools and helped to guide the initial stages and planning of the delivery for the IGB team. The data gathered at these early stages also informed the evaluation of the process. The summative evaluation (see Annex 4 for original plan) was not able to be completed (see Table 2), however, teacher feedback was undertaken using online surveys that were distributed after each training session (by Mentimeter or via a survey). At the end of the project, an E-Survey was sent to coordinator teachers to distribute to all school staff. Unfortunately, there was a low response rate to this survey (n=13 gathered from four participating schools). Due to the low response rate, the

planned comparison with pre-project evaluation forms was not possible (at this point¹). As a result of this teacher feedback was utilised as a reflection tool and to inform future practice rather than to fully assess the impact of the project, as had been planned. Table 2 below presents the planned and adapted evaluation.

Baseline Undertaken	Planned Summative Evaluation	COVID-Contingency Evaluation
9 x headteacher interviews	9 x summative interview	Postponed
7 x pupil focus groups		
7 x classroom and school observations		
146 x primary teacher surveys	146 x primary teacher surveys	E-Survey launched
464 x Year 6 pupil surveys	464 x Year 6 pupil surveys	Postponed – January 2021
86 x secondary teacher surveys	86 x secondary teacher surveys	E-Survey launched
672 x Year 9 & 11 pupil surveys	672 x Year 9 & 11 pupil surveys	Postponed – January 2021
Formative Evaluation	Evaluation forms and Mentimeter evaluation after each training event	Undertaken

Table 2: Planned and Adapted Evaluation

The planned strategy for the completion of the evaluation is set out in Annex 4.

4. Key findings of the Baseline Reports

Key Baseline Findings from Primary and Secondary Teachers

- 75% of primary staff and 77% of secondary school staff reported that they had never received any Equality and Diversity training (that had a gender focus)
- 92% of the primary staff and 88% of the secondary staff had never had any type of unconscious bias training
- Less than 10% of primary and secondary staff felt that they had received enough training in this area and therefore confidence levels around how to deal with gender-balance and what approaches can be used in school were low. Confidence levels were found to be far lower across the primary staff than the secondary school staff.
- Both the primary and the secondary teachers perceived that societal stereotypes and addressing the attainment gap between boys and girls were the principal gender-issues within the school.
- All the staff demonstrated awareness around some areas of gender balance, such as challenging the pupils, addressing stereotypes and reviewing their language but were less sure that they consistently reviewed all practice; such as reviewing displays and posters, teaching and curriculum examples or that they had availability to good quality resources.
- All schools used literacy and numeracy data to assess and address differences between the results of boys and girls.

¹ It is expected that a more extensive evaluation might be launched January 2021

- Staff across both sectors felt that tackling the mindset of the pupils and parents and addressing the training gaps in teachers could help to redress the gender-balance in school.
- Primary teachers often did not perceive gendered behavior in class but felt that it often reasserted during free-time and break time and through their choices of afterschool clubs.

Key Baseline Findings from Primary and Secondary Pupils

- The primary pupils demonstrated some gendered assumptions around activities such as ‘being in the army’, ‘being an engineer’ and ‘mending cars’ and ‘being a nurse’. However, most of the pupils felt that any gender could do any of the activities listed. 88% of the pupils felt that either boys or girls could be a ‘scientist’.
- The male pupils were more likely to have gendered assumptions about which gender does which activity and they were more likely to think that girls are better at some things than boys and that boys were better at some things than girls.
- Most of the primary school pupils had a strong sense that the school treated them equally.
- PE was cited with most frequency across the secondary school pupils as being the main subject that reflects an imbalance between the genders.
- Both secondary schools demonstrated gender-normative patterns of uptake to GCSE and A-Level in key subjects such as Engineering, Math, Physics and ICT for boys and Psychology, English Literature, Health and Social care and biology for girls.
- 44% of the secondary school pupils selected that ‘girls and boys naturally like different things’ as the reason for the gender imbalance in some GCSE and A level subjects in the UK
- Secondary school girls were more likely to suggest external reasons for subject choice than the boys.
- There was a lack of consensus across the secondary school pupils around gender issues in school, indicating that they do not feel that there is a clear model for equal treatment across the school.
- There were several careers that showed a gender-bias (5%+ difference).

5. Legacy Pack

Due to the unprecedented shut-down of the schools and the need for schools to focus all their resources and energies on COVID-contingency the project was unable to fully engage all schools and deliver the project in its entirety before the funding ended in April 2020. However, the IGB team continued to deliver training where possible until July 2020 and thereafter provided each school with a legacy pack so that they can continue training and working towards gender-balance when they felt that they had capacity. At present, evaluation of the use and utility of the Legacy packs has not been undertaken, so it is unclear how these will/have been used by each school at present.

Each Legacy Pack included:

1.	Introduction to Improving Gender Balance
2.	CPD and Interventions Resources (Science Capital, Personal Practice, Engaging with Parents, Boys Don’t Try webinar recording)
3.	Action Plan for Individual Schools and Findings
4.	How to measure Impact – guide and survey resources

6. Impact of the IGB project

Thirteen teachers from three of the school responded to the E-Survey that was launched in July² to assess the impact and process of the IGB Wales project. The response rate was not high enough to gather conclusive results but can provide a guide to initial impacts and future practice.

Initial Impacts

Eight of the teachers provided some information on how the training received from the IGB project had raised awareness and enabled teachers to be more conscious of gendered treatment or language that might be used in school. Most comments related to the unconscious bias training, some are presented in Table 3 below,

<p>“I have started to be more mindful of the unconscious bias in my own practice and try to change this. For example, when teaching about the forces on a skydiver I've always said 'he' in the past without even realising it, I've now made a conscious effort to say 'they' instead. I'm hoping to work towards building some kind of STEM careers fair next year using the links and suggestions provided. I have now joined the Royal Academy of Engineering Network and I'm looking forward to gaining/sharing ideas with other schools and see how to implement some of these ideas into the new Science and Technology AoLE as part of the new curriculum in Wales” (teacher, school 8)</p>	<p>“Yes, I am aware of things I am saying, typing, planning with regards to bias. I am looking for opportunities to celebrate famous females e.g. Marie Curie” (teacher, school 4)</p>
<p>“Training has made me reflect on my planning and has given me food for thought for future practice” (teacher, school 4)</p>	<p>“It has made me make a conscious effort not to use 'pet names' and gender-specific celebratory comments” (teacher, school 2)</p>
<p>“Much more aware of how easy it is to stereotype” (teacher, school 2)</p>	<p>“More conscious of the language used in lesson delivery” (teacher, school 8)</p>
<p>“It has certainly made me think about unconscious bias and how we might move the school forward in terms of reducing gender imbalance on a range of fronts” (headteacher, School 8)</p>	

Table 3: Teacher Reflections on the IGB training and project

Additional comments by two teachers related to the use of direct resources such as STEM websites that are now being used by staff (that were not previously used).

² Very few responses were gathered as teachers were prioritising COVID contingency at that time. The Survey was delayed in order to encompass the last training session that was held in early July 2020.

Planned implementation: The teachers also gave some information on how they were planning to implement some of the learning from the IGB project in school. This demonstrates that that IGB project was able to shift thinking and introduce new ideas. A summary of the progress and future planning of the schools who responded to the survey is below,

- School 8: Planning to train pupils in unconscious bias next year, teachers assessing their language, teaching and planning for bias, integrating the use of resources recommended such as The Royal Academy of Engineering and iAspire. Reviewing the school approach to STEM and Physical Education in terms of gender-balance.
- School 4: introducing more females into STEM examples, teachers assessing their language, teaching and planning for bias, reviewing toilet provision for all genders.
- School 2: Planning on inviting people from different industries into the school to talk about careers (representation from male and female), upkeeping a good gender-balance in sports clubs, integrating the use of resources and websites recommended for teacher and pupil development.

7. Recruitment of Phase 2 Schools

We planned to test the IGB approach with a wider range of schools in the second year. As such, we have tentatively set our recruitment criteria to target the following:

- Higher % FSM than in pilot cohort (possible target = min 2 schools with FSM >20%)
- Higher % of students from BAME backgrounds than in pilot cohort (possible target = min two schools with BAME pupils >12% of school cohort);
- Bilingual (Welsh/English) schools and/or Welsh language schools (possible target min 1 Welsh Language school OR min 1 bilingual school)

Following this process, we would expect that the spread of participating schools would look like the following:

Cluster 1 - One secondary school meeting FSM/BAME criteria, plus two feeder primaries

Cluster 2 - One secondary school meeting FSM/BAME criteria, plus two feeder primaries

Cluster 3 - One Welsh language secondary school, plus one feeder primary (potentially combined as a 3-19 school).

Each cluster would be supported by one of our Gender Balance coaches.

A short list of possible schools was drawn and each school was invited to attend an online meeting with staff from IOP Wales and the IGB Coaches in June 2020. Schools were asked to register their further interest in participating in the second phase of the IGB project. However due to a change in the funding agreement from Welsh Government then the number of schools participating was reduced in agreement with Welsh Government to 4. It was agreed that we would work with at least four schools in two 'clusters'. Two secondary schools and two feeder primary schools have been recruited to engage in the second phase of the project. The COVID variation to the contract resulted in the final list of four schools. One of the big concerns discussed was ability to engage with schools under the current circumstances and willingness on behalf of staff to engage online.

The schools selected to participate in the pilot project and second phase pilot project have been listed in Annex 2.

8. Second Phase Cluster - Autumn Term Activities 2020

The initial term of the project will be spent by the coaches getting to know the schools, staff and pupils. The individual findings reports will summarise the actions taken in each school, in order to plan the recommended interventions based on evidence gathered through online conversations, surveys and pupil questionnaires.

Although the actions taken will differ from school to school, generally these included:

- A data deep dive, looking at gender split on optional subjects
- Audit of school environment, website and other materials
- Online meeting with SLT and presentation to all staff via webinar
- A virtual learning-walk with the link teacher
- Virtual attendances at open evenings, careers events, governors' meetings etc
- Student trails
- Interviews with staff, pupils and the headteacher
- Questionnaires sent to parents and pupils

In addition to the work carried out at each school, 4 IGB workshops will be held at the Welsh Physics Teachers Conference in October 2020 which will be an online Conference, with a session held on unconscious bias and inclusive training techniques. These workshops will be provided by Stephanie Bevan and Anita Shaw.

IGB Festival October 15-18th

Schools who have engaged with the IGB Project in Wales have been invited to an IGB Festival online in October.

Coaches have been asked to contact their respective schools to promote this is a fantastic free online CPD opportunity. Teachers have been asked to share this invitation with staff who are closely involved in or interested in careers guidance/PHSE/parent attitudes/policy and communications. There is also an online training module relating to unconscious bias and inclusive teaching called Equalising Learning with opportunities to access the Equalising Learning modules prior to the festival.

The festival is being held online:

- Thursday 15th October 4pm – 6.15pm and
- Saturday 17th October 10am – 4.15pm.

Themes that will be addressed during the Conference include careers guidance/PHSE/parent attitudes/policy and communications which are all an important part of removing gender injustice from school. This is a common focus area across our partnership schools and so we will be holding specific online sessions during the festival, as well as providing you with networking time and opportunities for sharing best practice.

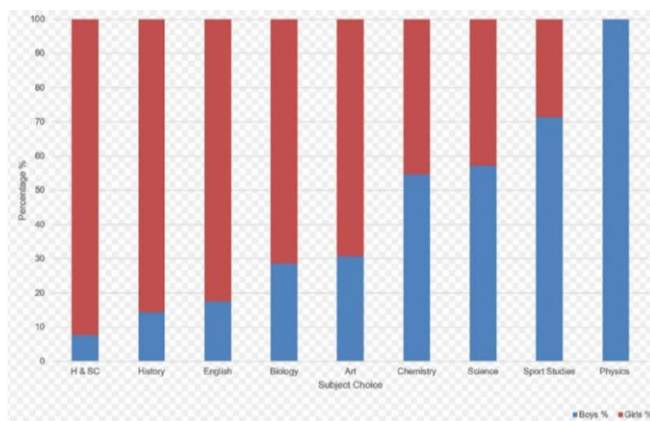
Phase 2: Schools Progress Report

Cluster 1: [Redacted information]

[Redacted information] is a mixed 11 -18 Comprehensive school in [Redacted information]. Around 26% of pupils are eligible for FSM and around 44% have additional learning needs. Around 25% of pupils live in the 20% most deprived areas of Wales. Most pupils are from a White, British background and very few speak English as an additional language. They were last inspected by Estyn in [Redacted information] and were judged as Unsatisfactory and needs urgent improvement in 3 different areas. This year's AS Level class has no female pupils. Our IGB link is [Redacted information] who has already been very proactive and prompt to arrange meetings.

[Redacted information] AS level choices September 2020

[Redacted information]



Actions so far:

- Met with Link Teacher to outline project and arrange for data collection
- Have presented project to Governors and answered questions about the project (Thursday 17th September)
- Arranged date for all staff presentation (Monday 5th October)
- Arranged meeting with Careers lead at school
- Contacted Head of Science and Physics to discuss needs of department
- Awaiting school data from Data Manager in School

[Redacted information]

[Redacted information] is a Primary School based in [Redacted information]. The current number on roll is 586 pupils. About 33% of pupils are eligible for FSM. Nearly all pupils are from a White, British background with most speaking English as their first language. The school was last inspected by Estyn in [Redacted information] and was rated Good. The Head Teacher, [Redacted information], is very excited to be a part of the project and has been very proactive in putting our first steps for data collection in place.

Actions so far:

- Met with Headteacher who is also going to be the school link for the project.

- Arranged introduction of project to the whole staff team (Wednesday 23rd September)
- Arranged introduction of project to governors (Thursday 12th November)
- Contacted science and KS2 leads to arrange meeting to discuss curriculum.
- Have received all school's self evaluated report documents, school calendar and strategic equality plan
- Arranged for training time including an INSET day in January and regular teacher training opportunities in the second half of this term

Cluster 2: [Redacted information]

[Redacted information] is a mixed 11 – 18 comprehensive school in [Redacted information] with over 1,700 pupils. Just over 26% of its pupils are eligible for free school meals and 13.5% have special educational needs. 84% of pupils are from a minority ethnic background and 34% speak English as an additional language. The school is rated green in the Welsh Government's support category and its last Estyn report, in [Redacted information], rated its performance as excellent.

Actions so far

- Initial meeting with [Redacted information] and [Redacted information]
- School represented at [Redacted information] Science Capital Teaching Approach CPD
- Planning meeting with [Redacted information]
- Technical difficulties at the school so [Redacted information], Assistant Head, introduced the project to the whole school
- Introductory presentation to the science department plus Q&A

[Redacted information]

[Redacted information] is based in [Redacted information], with 614 pupils on roll. 24% of its pupils are eligible for free school meals and 18% have special educational needs. 94% of pupils are from a minority ethnic background and 75% speak English as an additional language. Its Welsh Government support category is green and it was rated good by Estyn at its last inspection, in [Redacted information]

Actions so far

- Initial meeting with [Redacted information]
- Meeting with SLT
- Introductory presentation to the whole school

Outreach

As expected most outreach activities were cancelled post March 22nd 2020.

[Redacted information] attended several ASE National Teachmeets and spoke about the work that was being carried out in Wales on behalf of the IGB Wales team.

Staff joined National IGB webinars in order to share and gather more information from other IGB Colleagues across the UK.

Colleagues have shared information online at the Welsh Physics forum which has been held on

Thursday nights for Physics Teachers from across Wales since April 2020.

In September 2020 [Redacted information] attended the online Science and the Assembly Conference. [Redacted information] and [Redacted information] will deliver workshops in the Welsh Physics Teachers Conference which will be online between 5th-10th October 2020.

Looking ahead beyond Phase 2 Pilot

Lessons Learned

The plan for year two of the IGB project in Wales is to further test the effectiveness of the approach in a wider range of schools, to demonstrate that the initiative could be implemented across Wales in a similar way to which Education Scotland are currently doing.

The methodology of the approach is expected to remain broadly the same, subject to the findings of the draft evaluation report.

One of the key lessons learned from the first year is that of timing. As this was a pilot project, the summer term was taken up with recruitment of the team and the schools, with the data gathering exercise beginning in September. This had a negative impact on the ability to schedule interventions for teachers, inset day training and content for staff meetings had been organised by the school early on in the school year and this was hindered further by the closure of schools in March. We are now in a better position to advise on time commitments required by the school and help plan accordingly albeit online in the present circumstances.

Other successful solutions to this issue were implemented early in the Spring term such as organising ‘twilight’ interventions at a cluster level, hosting at the secondary school and inviting the local feeder primaries along. This allowed for networking and best practice sharing between teachers, which the teachers have found very useful. The use of webinars on science clubs and ‘Boys Don’t Try’ also had good take up, as these were also organised outside of school hours.

The other main lesson to learn that we have come across this year is the need to clearly define the identity and aims of the project to Senior Leadership Team at the start of the project. Although the principal aim for the Institute of Physics is to increase the uptake of A-Level Physics for girls, the whole school approach means that this is wrapped up in a number of other issues, such as the literacy attainment gap between boys and girls. Our research demonstrates that we need to tackle all of these issues in order for a longer lasting impact, but it has been difficult to explain to schools the type of interventions that we will likely be recommending, prior to establishing the school’s baseline. We anticipate that this should be easier in the second year, as we will be able to use the action plans from the first year and adapt as exemplars of the interventions that we could be suggesting.

With regards to COVID-19, the Institute are following official advice from authorities, including the ‘Guidance to educational settings about COVID’ from Welsh Government. Although none of our schools have currently been impacted as of yet, we are putting a contingency plan in place. We are fortunate in that we have already successfully delivered a number of online training sessions as a way of maximising attendance and bringing the cluster schools together, and therefore we are confident of being able to continue delivering the project, should circumstances change.

Key recommendations:

- Begin to work with schools earlier, to allow for initial data collection prior to the end of the summer term, leaving more time for school interaction and interventions which will offer more flexibility for teachers.

- Hold a range of intervention types, to allow for maximum uptake by teachers.
- Develop case study material based on the **[Redacted information]** and **[Redacted information]** clusters to help newly participating schools understand the aims of the project and share some of the findings from the evaluation report.
- Continue to develop online training facilities

List of Appendices

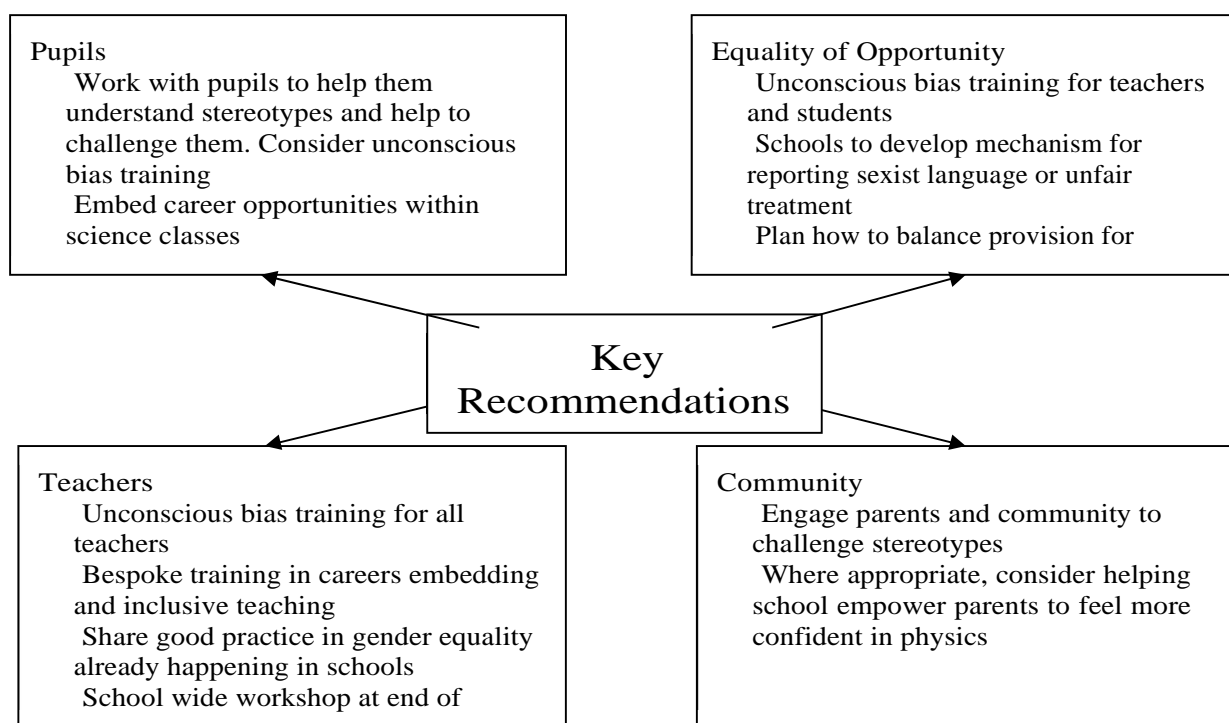
Annex 1- Phase 1 Pilot Schools

[Redacted information]

Annex 2 – Phase 2 Pilot Schools

[Redacted information]

Annex 3: Key recommendations from January 2020 Evaluation



Key recommendations

The results from the primary teachers and pupils baseline indicate that engagement at teacher, pupil and parental level may be key to changing attitudes longer term and building up pupils confidence in a wider set of activities that can then start to shape a wider-range of aspirations less determined by gender. The baseline data, taken as a whole, indicates several areas for further training and development amongst both teachers and pupils and the wider school community.

Pupils

- Pupil's thoughts and attitudes are key to changing patterns of behaviour: baseline data shows that male respondents, from primary school onwards, are more likely to state gendered assumptions than the female pupils. Work with pupils to help them understand where stereotypes generate and why, sometimes, we should challenge them. Consider using unconscious bias training (utilising cascade peer-to-peer learning to other pupils) to enlighten pupil groups to help them challenge bias and stereotyping
- Fewer secondary school pupils aspired to be subject specialist scientists that primary school pupils – Consider embedding career opportunities within science classes that could highlight the range of science jobs (at all levels) that the pupils could consider
- There was a correlation between what pupils considered boys to be good at (sports) and what many boys aspired to be at both primary and secondary level (sport-related jobs), similar patterns were seen across the female choices. Consider more science-related content at free-time or playtime that can strengthen pupils' ability to pursue and explore what they might be good at, in addition to sports. Strengthen science teaching and resources at primary level,

from foundation phase up, to engage and build the confidence of pupils so that more consider this ‘something that they are good at’

Equality of Opportunity in School

- Provide training for teachers and pupils to understand and recognise bias (whether conscious or unconscious) in school
- Work with schools to provide a mechanism to report sexist language or unfair treatment that can be addressed on a par with other protected characteristics
- Work with schools to plan how to balance provision for both boys and girls so that the school provides equal opportunities for all to thrive (i.e. wellbeing groups, toilets and STEM Clubs)

Teachers

- Training for all teachers in unconscious bias.
- Bespoke training in careers embedding and inclusive teaching as school appropriate.
- Consider sharing good practice in gender equality and improving gender-balance that is already happening across the participating schools
- Consider holding a school-wide workshop towards the end of the project to share learning and disseminate results (and gather feedback)

Community

- Engage parents and work with the community to challenge stereotypes.
- Where appropriate, consider working with the school to help empower parents to feel more confident in physics and physics-related subjects (Maths/Engineering)

Annex 4 – Original Strategy for Completion of Phase 1 Evaluation

Strategy	Date	Method
Monitoring of Outputs)	ONGOING	Monitoring spreadsheet set up, evaluation planning and interview questions finalised, meetings with project team and logic model/theory of change developed. Online feedback survey developed for post-training evaluation
Summative Interviews of SLT at all Schools	March 2020	Summative semi-structured interviews with the head teacher of each of the participating schools (and with a selection of STEM & non-STEM teachers)
Teacher Questionnaires	March 2020	All teacher to complete POST-Project evaluation questionnaire
Focus Groups with Pupils	March 2020	Post Project Focus groups with pupils taking gender-typical and gender atypical subjects (x 5) Focus groups with primary feeder school pupils (x 3)
Data review	March 2020	Data mine for current uptake to physics subjects (to assess any increase)
Pupil Questionnaire	April 2020	Summative Pupil questionnaire assessing gender assumptions with an emphasis on subject options and careers choices (plus control school?)
Observation	TBA. With consultation with Coaches	Observation in a classroom setting
Final Evaluation Report	May 2020	Final report submitted and dissemination to team

Annex 5: Phase 1 Pilot Project: Schools Progress Report

[Redacted information]

[Redacted information]

[Redacted information] is a small primary school with a long-serving senior leadership team. The interaction was strong, with both the headteacher and the deputy headteacher fully involved.

The unconscious bias training was well received. All staff participated and the governors were also invited to attend. Feedback was wholly positive, with all delegates confirming that they had an improved understanding of unconscious bias and strategies to combat it in the classroom.

[Redacted information] were keen to continue with online training and engaged in all of the training which was organised including Boys Don't Try webinar, the RAEng KS2/KS3 training, Careers in Primary Schools, Science Capital Teaching Approach and Support for Science Clubs, with other action plan items as work in progress. The School also participated in KS1 and KS2 Science Resource workshop. A Legacy pack was sent to the school at the beginning of September, and the school has been invited to the IGB Festival.

[Redacted information]

The IGB project generated much staff discussion within [Redacted information], and the headteacher has been a strong advocate.

Staff have undertaken the unconscious bias training and the Boys Don't Try webinar and feedback was wholly positive, with all delegates confirming that they had an improved understanding of unconscious bias and strategies to combat it in the classroom.

In March, [Redacted information] were keen to continue online and engaged in all of the training participating in the Careers in Primary Schools, Science Capital Teaching Approach and Support for Science Clubs workshops and the RAEng KS2/KS3 training and Science Capital Teaching Approach training. The legacy pack was sent to [Redacted information] at the beginning of September, and they have invited them to the IGB Festival.

[Redacted information]

[Redacted information] is one of the biggest primary schools in the area, with over 80 teaching and support staff. The headteacher was a strong supporter of the project and the principles fit well with the school plans. The SLT expressed a desire to incorporate a number of the recommendations provided into their School Improvement Plan, and are looking beyond this academic year in order to embed the strategies suggested. [Redacted information] were keen to continue online and engaged in all of the training organised for them and attended the Boys Don't Try webinar, Unconscious Bias Training, RAEng KS2/KS3 training Careers in Primary Schools, Science Capital Teaching Approach and Support for Science Clubs workshops, with other action plan items as work in progress.

The School also participated in KS1 and KS2 a Science Resource workshop on Tuesday 23 June - The Legacy Pack was sent to [Redacted information] at beginning of September, and they have invited them to the IGB Festival.

[Redacted information]

There were changes to Senior Management in Sept 2019 which resulted in a delay to the initial set up for the project. Further delay resulted from an ESTYN visit in December 2019 and the link teacher being away after Christmas. However, the school provided an alternative link teacher, and interventions including unconscious bias for the student council, teachers and teaching assistants were delivered in March, with other action plan items as work in progress. After that there was very little response from [Redacted information]. The Legacy pack was sent at the end of July and at the beginning of the new term and an email to outline the purpose of the Legacy pack was also sent. [Redacted information] have been invited them to the IGB Festival.

[Redacted information]

[Redacted information] link teacher is a physicist who accessed many of the IOP's development opportunities and who has the full support of the headteacher. Teachers at [Redacted information] have undertaken the Unconscious Bias training and the Boys Don't Try webinar. Feedback for unconscious bias training was generally positive, with some staff expressing the need for further training on the subject. As the module delivered was a short version of Introduction to Unconscious Bias, further modules were made available for the summer term. [Redacted information] were keen to continue online and engaged in all of the training which included RAEng KS2/KS3 training, STEM Careers training and Science Capital Teaching Approach training. A bespoke legacy pack was sent to [Redacted information] at the beginning of September, and they have been invited them to the IGB Festival.

[Redacted information]

[Redacted information]

Staff in [Redacted information] are very aware of the the IGB project and were very keen and enthusiastic to start work on interventions. The coach worked hard to make sure that the SLT staff remain proactive with regard to the project as there will be staff changes in Summer 2020.

Intervention opportunities have been limited. However, staff from the school attended unconscious bias training for NQT teachers, the Boys Don't Try webinar and the STEM club workshop, both of which were hosted at the secondary school. Since March, staff were able to attend some online sessions which we provided during the summer term. In June a meeting was held with [Redacted information] and [Redacted information] to discuss the needs of the School and explain the purpose of the legacy pack. Staff members participated in a STEM Careers online workshop and Science Capital Teaching Approach Workshop. The bespoke Legacy pack and teacher questionnaire were sent to the school at the end of July. This has also been resent at the start of the new term. [Redacted information] staff have been invited to attend the IGB Festival in October. However, since July there has not been any further response from [Redacted information]

[Redacted information]

Following the baseline survey, it become clear that staff in [Redacted information] had a good awareness of gender balance issues and were eager to learn new strategies, with staff expressing frustration with regard to training on how to tackle issues. The coach reported a positive response, with SLT fully on board and we are encouraged that the legacy of the project will be positive.

The school received unconscious bias training for the pupil voice group and all year 5 pupils, and all staff (including TA's). Teachers also attended a STEM club workshop together with a group of parents who were extremely enthusiastic, and some local STEM Ambassadors. Staff from [Redacted information] attended the Boys Don't Try webinar and Science Capital Teaching Approach webinar, and there was also a good response to the STEM Club training provided in March. Since then there was very little uptake up of online support sessions. A meeting was held with [Redacted information] in May to discuss the school's position and explain the purpose of the bespoke Legacy Pack and teacher questionnaire (which were sent to the school at the end of July). This was also resent at the start of the new term. [Redacted information] staff have been invited to attend the IGB Festival in October.

[Redacted information]

Some early patterns of behaviour and stereotyping were identified by some members of staff in [Redacted information], highlighting the need for training. The project was well received by staff who attended unconscious bias training and the Boys Don't Try webinar and STEM Clubs training together with parents. Material for a Careers in Context workshop and Science at KS2 and Foundation Level workshop were developed, and although it was not possible to hold these sessions in the school some of the staff were able to join online sessions – Science Capital Teaching Approach, and R.A.Eng Workshop. No staff participated in the STEM Clubs online workshop. The purpose of the Legacy pack has been outlined to [Redacted information] and the Legacy pack was sent at the end of July and at the beginning of the new term. Staff have been invited to the Festival in October.

[Redacted information]

There is good scope for student involvement and student led initiatives at [Redacted information]. Again, the project was been well received by staff, although scheduling interventions proved difficult as the link teacher was not full time. Material for a Careers in Context workshop and Science at KS2 and Foundation Level workshop were developed. No staff participated in any training post March 2020. The purpose of the Legacy pack has been outlined to [Redacted information] and the Legacy pack was sent at the end of July and at the beginning of the new term. Staff have been invited to the Festival in October.