CONCRETE IN THE CLASSROOM

Programme Evaluation

The Impact and Outcomes of the Concrete In The Classroom Programme – The Difference it Makes

Integratis Consulting

CONCRETE SCOTLAND

Contents

Acknowledgements

Concrete in the Classroom is a programme that brings together a range of partners from Education and Business working together to improve Academic, Skills and Employability outcomes for young people. The success and impact of this collaboration would not be possible without the assistance and commitment of the following organisations:

Executive Summary

"Concrete Scotland is a trading name for Security Initiatives Limited and delivers active learning opportunities throughout the education system. Concrete in the Classroom is the evolution of the earlier piloted program "Concrete Shoebox" in 2011.

Concrete in the Classroom is a Curriculum for Excellence resource which delivers cross curriculum learning through five construction related lessons and culminating in a site visit to a concrete factory or similar construction facility.

As was highlighted within the Wood Commission Report reviewing Scotland's approach to vocational education and the subsequent Scottish Governments published document "Developing the Young Workforce - Scotland's Youth Employment Strategy" to formulate a strategy to address the recommendations from the Wood Report, there had to be better a better way to facilitate engagement between employers and education and create young people with a broader experience making them more prepared and "fit for work".

The Concrete in the Classroom set out with clear objectives for the wider pilot:

- Create a learning experience which shows employability within the Construction Industry and explore the part that the Concrete Sector plays in this Industry.
- Create lifelong learning skills and show how these materialise in future work opportunities.
- Create new meaningful links between Secondary Education, Industry and Further / Higher Education.
- Help to create confident individuals who are successful learners and become an effective contributor and responsible citizen.
- Develop an awareness of career opportunities that may not have been referenced prior to the program.
- Create an opportunity through CPD for schools to up skill their staff to repeat the program whilst being supported and ultimately self-deliver the program going forward as other schools join the program.

The following independent evaluation will show the outcomes from the Concrete in the Classroom extended pilot and where the program can really deliver on the DYW Strategy recommendations and more importantly make a difference to the individual participants and their approach to future employment.

- **200+ Pupils Participated in the Programme**
- **135 Boys and 70 Girls**
- **10 Schools Participated across 6 Scottish Regions**
- **22 Industry Partners were involved in the design and delivery of the Programme**
- **6 Different Year Groups S1 to S6**
- **7 Different Age Groups**

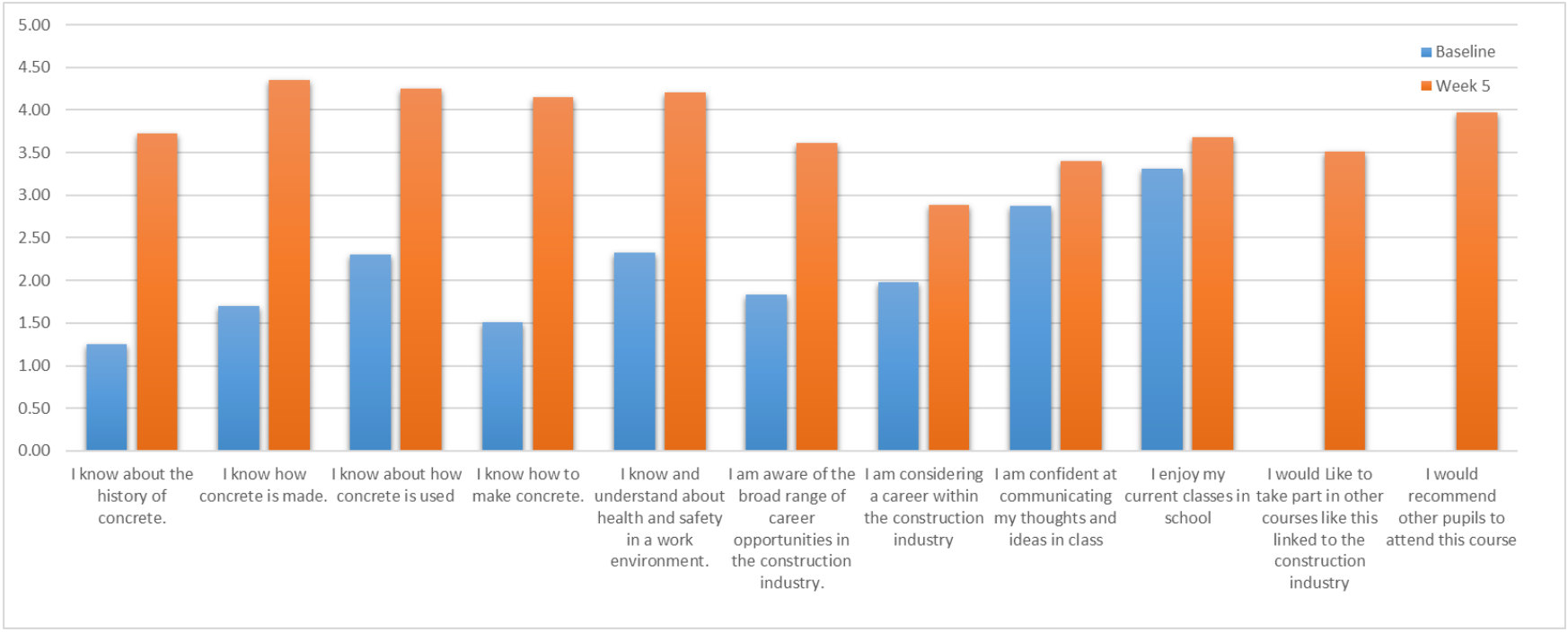


Figure 1 - All Schools Comparison for all Outcomes, Scale: 1=Strongly Disagree, 5=Strongly Agree

The evidence collected before, during and after the programme, demonstrates that many positive outcomes were experienced by those that took part. Figure 1 above, is a comparison of a baseline measure that was taken prior to the start of the course and also at the end of the 5 lesson programme for each Outcome. In every case a positive difference has occurred and in most cases, the difference has been significant. Two of the questions were only asked at the end of week 5 demonstrating that practical skill based programmes like Concrete in the Classroom are valued by young people, many of whom would wish to do more and recommend the CIC programme to others.

The CIC Programme has demonstrated that it is closely aligned to and positively impacts upon key strategies, policies and priorities at a National, Local and Industry level.

The CIC Programme was developed by individuals and organisations who have experience and expertise within the construction industry. This has ensured that the course content and outcomes are relevant to and of benefit to the industry.

Feedback from the teachers and schools involved in the programme has been very positive and demonstrates the programme makes a real and meaningful contribution to the Curriculum for Excellence

Concrete in the Classroom is a positive example of how education, industry and skills and training providers can collaborate and work together to help stem the skills shortages that have been identified within the Construction Sector and ensure the supply of training is meets industry requirements.

What the pupils had to say.

"It was Brilliant"

"Much more relaxed than other classes, easier to learn"

"Great getting your hands dirty and doing practical exercises instead of reading stuff"

"You don't get bored so easily as you're always doing things"

"Felt like we were being treated more as adults and not kids"

"The industry visits were great, definitely more interested in working in the construction industry than I was"

Project Background

"The Construction Industry is made up of numerous smaller industries trades and trades.

Each of these trades and industries offer vocational opportunities to school leavers at a variety of different levels: from unskilled positions to senior management functions. One of these Industries is The Concrete Industry. Concrete is globally the widest used construction product. Yet there is currently little or no study on the science or technical qualities of the product within our secondary school curriculum. Without a basic understanding of the product and the opportunities available within the Concrete Industry then there is no natural route into this sector and as such we may miss out on potential employees and leaders of the future.

In response to this gap, in 2010, and in conjunction with The Concrete Society Scotland, an initial pilot programme called the Concrete Shoebox was developed based around a 5 lesson plan. This programme was to be used as an introduction to the Concrete and Construction Industry within the Curriculum for Excellence. The Pilot programme ran at Larbert High School who's evaluation of the initial pilot concluded:

""I would conclude that the "Concrete Shoebox" is an excellent course for students from first year through to third year. It provides students with a real link to the industrial world outside school. It provides all the qualities of the Curriculum for Excellence as it encourages and engages students in today's 'real world'.

Science Teacher

"The course is an ideal subject area to develop further and present as a 'Skills for Work' course against the backdrop of the construction industry."

Science Teacher

The purpose of the Curriculum for Excellence is encapsulated in the four capacities: to enable each child or young person to be a successful learner, a confident individual, a responsible citizen and an effective contributor.

The curriculum aims to ensure that all children and young people in Scotland develop the knowledge, skills and attributes they will need if they are to flourish in life, learning and work, now and in the future.

Concrete in the Classroom is an evolution from the original Concrete Shoebox pilot. The purpose of the project is to engage secondary school pupils in an active learning process to assist with their future employability and to raise the awareness of how their current learning experience is relevant to future employment and their lifelong learning.

The program is delivered in 5 x 50 minute lessons and culminating in a final half day site visit to either a concrete factory, construction site or related construction location.

The five lessons are structured to give a broad technical and scientific understanding of Concrete as a construction product and an insight to the related career opportunities within this sector.

The CIC programme also makes a positive contribution to and sits within a much broader strategic context.

Concrete in the Classroom - A Strategic Fit

A review of current Strategies and Policies was carried out to establish whether or not the programme was a good fit and helped to support current national and industry priorities.

National Performance Framework

Concrete in the Classroom's underpinning approach is about developing partnerships between education and industry and delivering real skills, knowledge and a learning experience for young people which are of value in and to the construction sector. This supports the Scottish Governments Strategic Objectives of;

- A Smarter Scotland
- A wealthier and fairer Scotland

The programme also delivering Outcomes that contribute positively to a number of National Outcomes;

- We realise our full economic potential with more and better employment opportunities
- for our people
- We are better educated, more skilled and more successful, renowned for our research
- and innovation
- Our young people are successful learners, confident individuals, effective contributors
- and responsible citizens
- Our children have the best start in life and are ready to succeed

The Scottish Governments Economic Policy

The Concrete in the Classroom Programme delivers a programme of learning with is based upon the development of skills and knowledge that are valued in employment and "Equipping our young people with the knowledge and skills to flourish"

The Skills Strategy for Scotland

The Scottish Governments Skills Strategy for Scotland focuses on a number of key themes:

- Personal and learning skills that enable individuals to become effective lifelong learners;
- Literacy and numeracy;
- The five core skills of communication, numeracy, problem solving, information technology and working with others;
- Employability skills that prepare individuals for employment rather than for a specific occupation;
- Essential skills that include all of those above; and
- Vocational skills that are specific to a particular occupation or sector
- Deliver a commitment of ensuring that vocational skills and qualifications have parity of esteem with academic skills and qualifications. We will encourage Partnership working.

The CIC programme brings the Skills Strategy themes to life in a way that engages young people in a learning experience that compliments core academic subjects such as maths and science and also develops lifelong skills such as communication, teamwork and leadership.

The Scottish Governments Youth Employment Strategy

Is fundamentally about ensuring a work relevant educational experience. It is about all of us valuing and understanding what a rich blend of learning, including vocational education, can offer. It is about employers playing an active role, both shaping and benefiting from Scotland"s education system by helping to create the talent pool they need and recruiting young employees. Ultimately, it is about the future workforce, our young people, making informed and ambitious choices about jobs and careers, ready to take their place in the world as effective contributors. The need to provide enhanced quality work experience while at school and college**.**

The CIC programme helps to build partnerships between education and industry but also offers individuals an opportunity to make links with employers and increase their knowledge and awareness of career opportunities.

The Curriculum For Excellence

The CIC Programme supports the CfE by providing opportunities for a broader and more varied learning experience for young people which directly supports the STEM subjects which are the foundations of the industrial and corporate world.

CITB Strategy

CIC is a positive example of how education, industry and skills and training providers can collaborate and work together to help stem the skills shortages that have been identified within the Construction Sector and ensure the supply of training is meets industry requirements.
The Programme also significantly improves levels of engagement between schools and employers to improve the awareness and appeal of working in construction to young people.

The Programme

Programme Design

The program is delivered in 5 x 50 minute lessons and culminating in a final half day site visit to either a concrete factory, construction site or related construction location.

The five lessons are structured to give a broad technical and scientific understanding of Concrete as a construction product and an insight to the related career opportunities within this sector.

The lesson plans are titled:

Lesson 1. ""What, Why and When"" - An introduction to the history of cement bound materials. An overview of what materials make concrete. The way in which these products are collected and combined and how they are used in the modern world.

Lesson 2. ""What is Concrete"" - Understand how the different particle sizes are combined to form concrete. How the particles are bound together. Gain the ability to sieve materials and weigh materials. Combining materials in proportions and conversions from mass to volumes.

Lesson 3. ""Health and Safety in the Workplace - Understand the importance of and responsibility towards Health and Safety. Both in respect of cementitious materials and the wider construction industry.

Lesson 4. ""Hydration, Practical Concrete"" - Understand how each of the constituent materials that make up concrete combine to create a fluid material. Gain the ability to weigh and measure materials in correct proportions and get an understanding for the relationship between water and cement

Lesson 5. ""Concrete in a Hardened State"" - Understand the physical properties of hardened concrete. Understand that hardened concrete is the result of an exothermic reaction and not of a drying out. Introduction to curing and its importance. Environmental consideration relative to concrete usage

Industry Visit - The culmination of the five lesson plans is an industry supported visit to a construction related work environment to bring the class learning to life, increase awareness of employment opportunities and forge stronger links between Education and Industry Partners

Teacher Training Development – A CPD event was held for all teaching staff who were involved in the programme. The purpose of the event was to develop the staff confidence, building capacity, skills and knowledge with a view to the schools achieving a level of self-sufficiency in terms of future programme delivery. The day also offered an opportunity to reflect on the completed programmes and identify any opportunities for learning that could be used to improve future programme development and delivery

Concrete in the Classroom

The Numbers

200+ Pupils Took Part

10 Schools 6 Regions

22 Industry Partners

135 Boys 70 Girls Took Part

6 Different Year groups

7 Different Age Groups

The Evaluation

How did we gather evidence

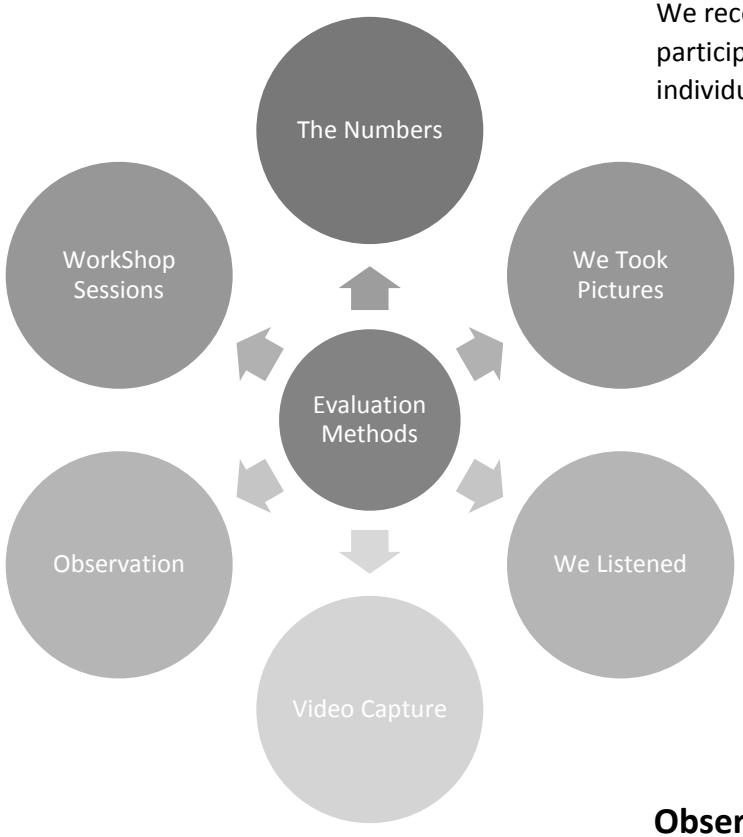


Figure 2 - Evaluation Model

Numerical Data

We recorded statistical information on course attendance and participation. A baseline and week 5 measure was taken for each individual in relation to the planned outcomes.

Pictures

We took pictures of participants in a wide variety of activities and situations, capturing examples of emotions, achievements and behaviours.

Listening

We listened carefully to each individual to better understand their thoughts, aspirations and hopes We also listened to the thoughts of other stakeholders.

Workshop Sessions

Within each workshop session, participants took part in a range of activities and discussions, each of which produced a physical record of their thoughts, ideas, concerns and choices.

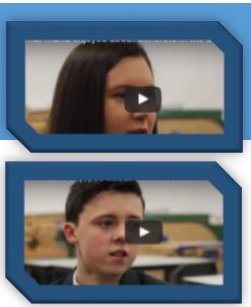
Observation

Each activity session was carefully observed and recorded, looking at ways in which participants changed, experienced the activity and interacted.

Video

We captured individuals participating in some of the activities and also carried out a range of brief interviews with participants, and teachers.

What difference did the programme make?



Programme Outcomes - Pupils

The Concrete in the Classroom Programme intended to deliver a range of outcomes.

- ✓ **Course participants increase their understanding of the history of concrete and how it is used in the modern world.**
- ✓ **Course participants increase their understanding of how concrete is formed and are able to sieve and weigh materials.**
- ✓ **Course participants increase their understanding of how concrete becomes a hardened material.**
- ✓ **Course Participants increase their understanding of health and safety in the work environment.**
- ✓ **Course participants are able to make concrete using the correct materials and quantities.**
- ✓ **Course participants increase their awareness of employment opportunities within Construction Industry and concrete sector**
- ✓ **Course participants are confident and positive contributors and express their thoughts and ideas in the class environment and take part in activities.**

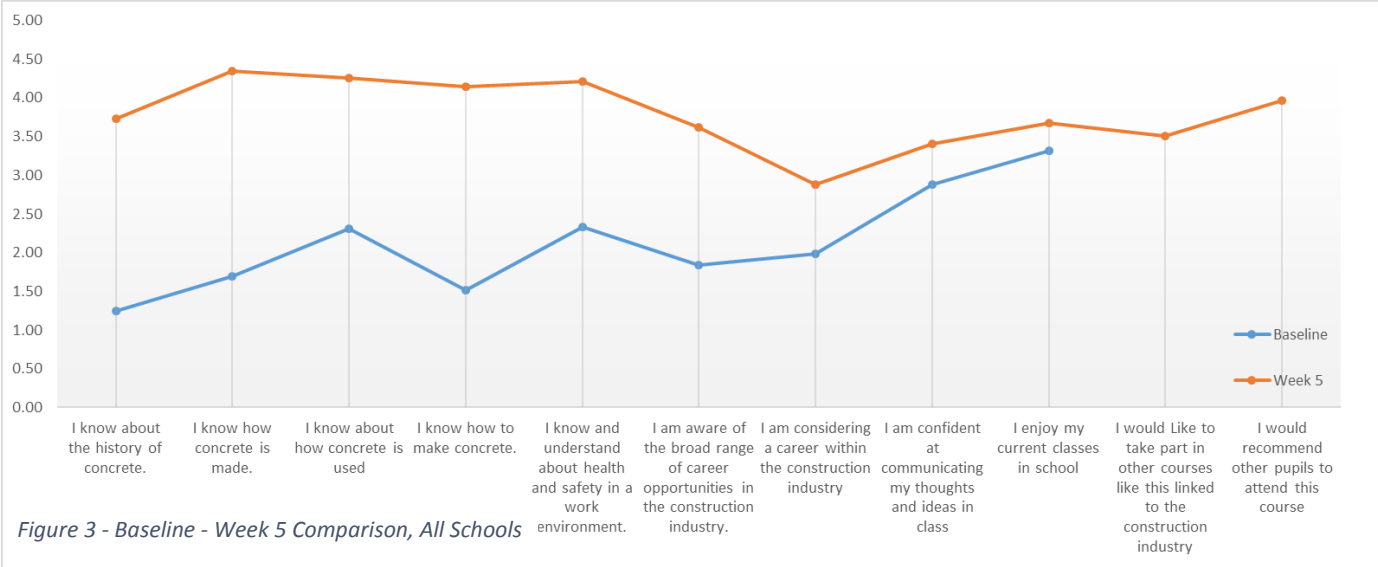


Figure 3 - Baseline - Week 5 Comparison, All Schools

The Programme was delivered to 200+ pupils across 10 schools located across Scotland. As part of the programme evaluation, pupils were asked to complete a survey asking them a range of questions which were linked directly to the programme outcomes. Pupils rated their answers on a 5 point scale (1 = Strongly Disagree, 5 = Strongly Agree).

Figure 3(Above) shows a comparison (for all schools) of pupil responses before they participated in the programme (Baseline) and after they completed the programme (Week 5). The survey shows that across all outcomes there was a considerable difference made to pupils level of knowledge and skills.

Two further questions were asked of pupils in Week 5 and related to their level of interest in taking part in other vocational classes like “Concrete in the Classroom” and whether or not they would recommend the programme to others. In both cases, responses were very positive.

The survey findings were also positively reinforced through observing the pupils demonstrating their newly acquired skills, knowledge and confidence.

Figure 4 - Female

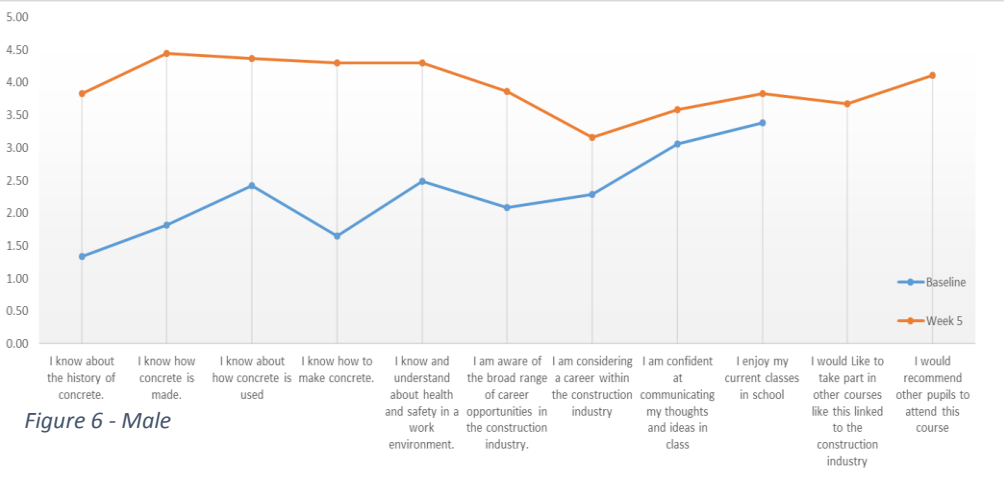


Figure 6 - Male

Of the 200+ pupils who took part on the programme, 135 were male and 70 females. Figures, 4,5 and 6 show a comparison of all schools by gender.

The responses given show that in the case of Male pupils their starting levels of knowledge and skill are slightly higher than females and this small difference is maintained at the end of the programme.

The biggest difference between genders related to questions about knowledge of career opportunities in the construction industry and whether individuals were considering a career in the industry. The comparison table in Figure 3 shows that the number of females considering a career in the construction industry increased at week 5.

	Gender			
	Female		Male	
Question	Baseline	Week 5	Baseline	Week 5
I know about the history of concrete.	1.08	3.49	1.34	3.84
I know how concrete is made.	1.47	4.14	1.82	4.44
I know about how concrete is used	2.08	4.00	2.42	4.37
I know how to make concrete.	1.24	3.81	1.65	4.30
I know and understand about health and safety in a work environment.	2.03	4.00	2.48	4.30
I am aware of the broad range of career opportunities in the construction industry.	1.35	3.07	2.08	3.87
I am considering a career within the construction industry	1.38	2.28	2.29	3.16
I am confident at communicating my thoughts and ideas in class	2.52	3.02	3.06	3.58
I enjoy my current classes in school	3.17	3.35	3.38	3.83
I would Like to take part in other courses like this linked to the construction industry		3.16		3.67
I would recommend other pupils to attend this course		3.67		4.11
Grand Total	**1.81**	**3.45**	**2.28**	**3.95**

Figure 5 - Male, Female Comparison

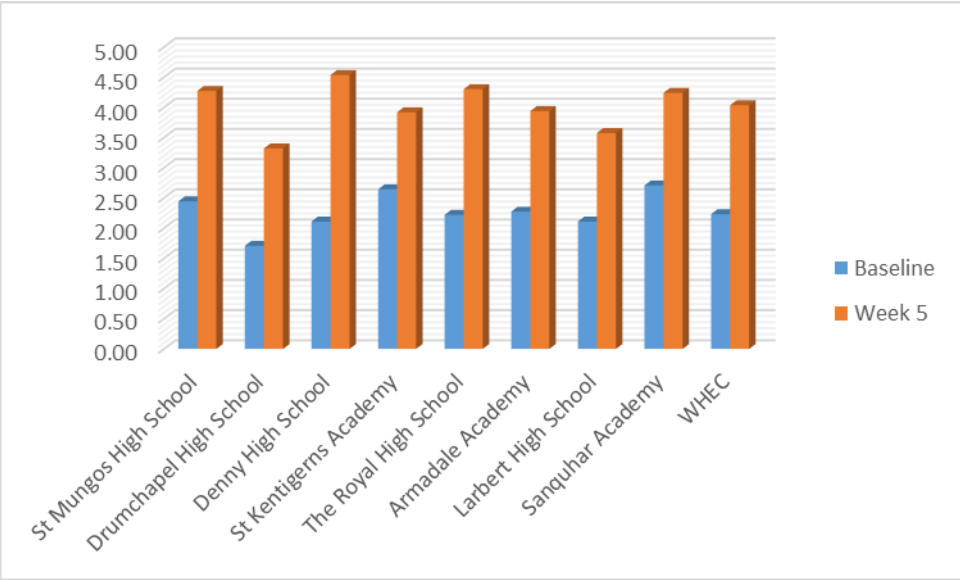


Figure 7 - School Comparison, All Outcomes

At the time of writing the evaluation report, 9 schools had taken part in the programme. All schools showed significant impact from taking part in the programme (figure 7). Variation between schools in terms of baseline and Week 5 measurers can be accounted for in terms of variation in age, school year and gender. In most cases both baseline and week 5 measures were higher the older the pupils were. (Figure 8)

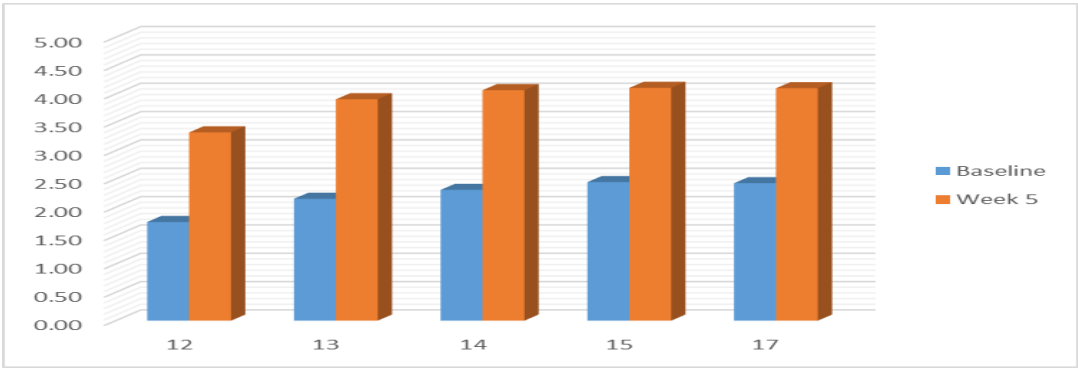
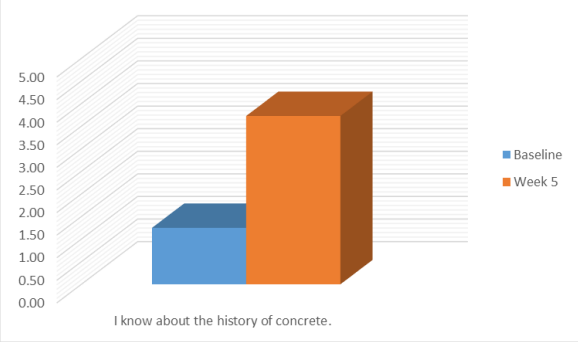


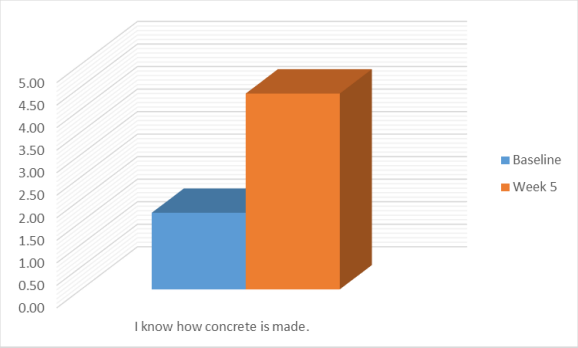
Figure 7 - Age Comparison, All Outcomes



Outcome 1 – Participants know about the history of concrete

This outcome had the lowest baseline measure showing that levels of knowledge about the history of concrete prior to taking part in the programme were relatively low. On completion of the programme, levels of knowledge had increased considerably from an average of 1.25 to 3.73, a difference of 2.48. This was ranked the 3rd biggest difference across all outcomes.

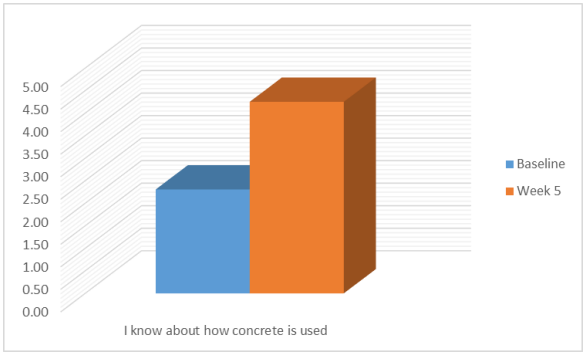
In particular pupils showed an interest in the fact that concrete was the second most common material used after water and the oldest concrete so far discovered dates from around 7000 BC, and was found when road construction in Southern Galilee uncovered a concrete floor.



Outcome 2 – Participants know how concrete is made

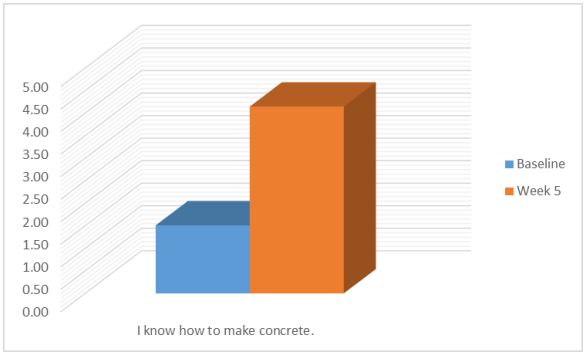
This outcome had the 3rd lowest baseline measure showing that levels of knowledge about the history of concrete prior to taking part in the programme were relatively low. On completion of the programme, levels of knowledge had increased considerably from an average of 1.70 to 4.35, a difference of 2.65. This was ranked the biggest difference across all outcomes.

In particular pupils showed an interest in the different materials that go into the making of concrete and how the different quantities of materials affected the concrete's properties.



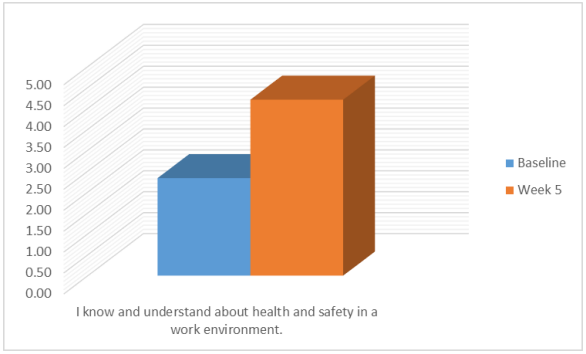
Outcome 3 – Participants know how concrete is used

This outcome had the 4th lowest baseline measure showing that levels of knowledge about concrete is used, prior to taking part in the programme were relatively high. On completion of the programme, levels of knowledge had increased from an average of 2.31 to 4.25, a difference of 1.95. This was ranked the 4th biggest difference across all outcomes.
In particular pupils showed an interest in the different uses made of concrete in the world of construction but also in areas such as art and how versatile the material was. The industry visits help to bring this particular aspect of the programme to life as industry partners explained and demonstrated the full range of concrete products and processes.



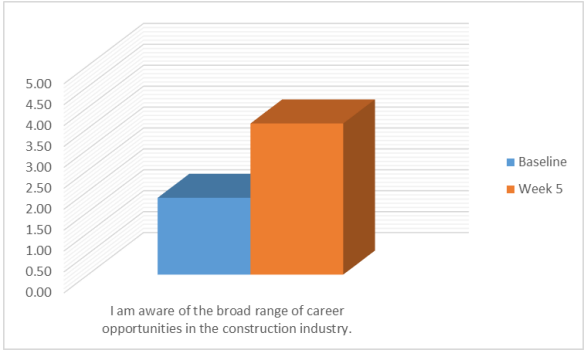
Outcome 4 – Participants know how make concrete

This outcome had the 2nd lowest baseline measure showing that levels of knowledge about how to make concrete, prior to taking part in the programme were very low. On completion of the programme, levels of knowledge and skill had increased significantly from an average of 1.51 to 4.15, a difference of 2.64. This was ranked the 2nd biggest difference across all outcomes.
In particular pupils showed a very high level of interest in the practical exercises of weighing, sieving and mixing the concrete materials and forming the mix into individual concrete moulds. This practical hands on form of learning seemed to achieve high levels of pupil engagement. This is reflected in the outcome measurement scores and can been seen visually in the video and photographic evidence.



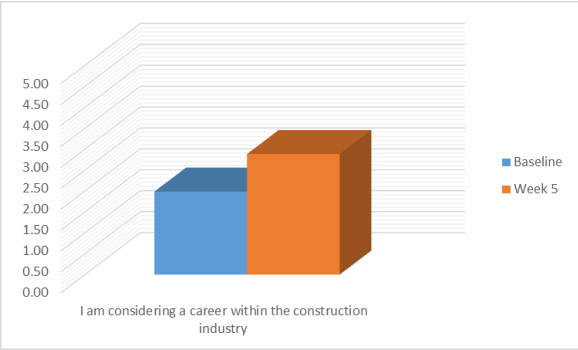
Outcome 5 – Participants know and understand about health and safety in a work environment

This outcome had the 3rd highest baseline measure showing that levels of knowledge about health and safety, prior to taking part in the programme were very relatively high. On completion of the programme, levels of knowledge and understanding had increased considerably from an average of 2.33 to 4.21, a difference of 1.88. This was ranked the 5th biggest difference across all outcomes.
Again there was a very high level of pupil engagement in this element of the programme due to the hands on practical approach that was taken. Pupils had an opportunity throughout the programme to wear PPE and were involved in conducting dynamic risk assessments. The industry visits also helped to emphasise how health and safety is of paramount importance in the making of concrete but also within the wider construction industry.



Outcome 6 – Participants are aware of career opportunities in the construction industry

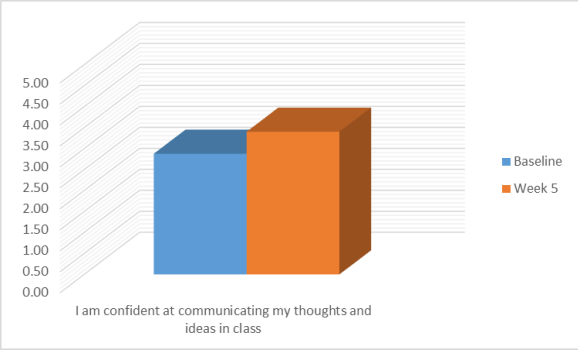
This outcome had the 4th lowest baseline measure showing that levels of awareness of career opportunities within the construction industry were relatively low, prior to taking part in the programme. On completion of the programme, levels of knowledge and understanding had increased considerably from an average of 1.84 to 3.61, a difference of 1.78. This was ranked the 4th lowest difference across all outcomes. This may indicate that there was more that could be done in the future to provide more tangible resources and information relating to educational opportunities, career choices and pathways within the construction industry.
The visits to industry partners at the end of the programme was a very effective way of highlighting the breadth of employment opportunities within the Concrete Sector of the Construction Industry.



Outcome 7 – Participants are considering a career in the construction industry

This outcome had the 5th highest baseline measure showing that there was significant pupil interest in a career within the construction industry, prior to taking part in the programme. On completion of the programme, the level of interest had increased from an average of 1.98 to 2.88, a difference of 0.9. This was ranked the 3rd smallest difference across all outcomes.

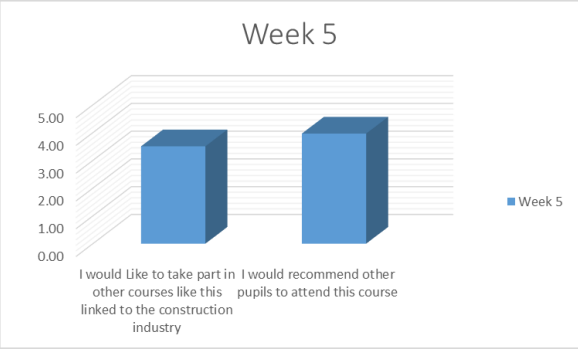
The measures show that although interest in careers within the construction industry did increase as a result of the programme, the level of increase was not as significant as in other outcomes and perhaps this provides an opportunity to increase the employment related aspects of the programme for future delivery.



Outcome 8 – Participants are confident at communicating their thoughts and ideas in class

This outcome had the 2nd highest baseline measure showing that levels of pupil confidence, prior to taking part in the programme were very relatively high. On completion of the programme, levels of confidence had increased from an average of 2.88 to 3.4, a difference of 0.52. This was ranked the 2nd smallest difference across all outcomes.

What came across strongly through feedback from teachers and pupils and through observation captured on video was that at week 1 of the programme, there was a high level of uncertainty amongst pupils as to what the course was about and how it would be delivered. However the levels of engagement and participation in the learning increased rapidly over the 5 weeks due to the informal teaching style, practical exercises and more relaxed atmosphere that were characteristics of the programme. In some cases participants who initially reported very low confidence scores within the baseline went on to score confidence very high at the end of the programme, perhaps a reflection on the learning experience provided being more suited to their individual learning style and how much they enjoyed the course.



Additional Questions

Two additional questions were asked at the end of week 5 to ascertain what the level of pupil interest was in taking part in other programmes like Concrete in the Classroom and whether or not pupils would recommend the programme to other pupils to take part in.

In both cases, the response from pupils was very positive showing a high level of demand for other practical, skill based programmes linked to the construction industry and a high level of pupil satisfaction for the Concrete in the Classroom Programme.

Programme Outcomes – Teachers & Schools

- ✓ **Teachers feel that the "Concrete in the Classroom" programme builds pupil awareness of employment options within the construction industry and develops relevant workplace skills and knowledge.**
- ✓ **Teaching staff feel that the programme contributes positively to experience and outcomes in the curriculum areas of Health and Wellbeing, Mathematics, Sciences and technologies**
- ✓ **Teaching staff feel the course provides a positive contribution to the school curriculum choices available to pupils.**
- ✓ **Teachers would like to develop more programmes like "Concrete In The Classroom" to increase routes from school into employment or further education which is closely linked to employment.**
- ✓ **Teaching staff are confident to continue delivering the Concrete in the classroom programme.**

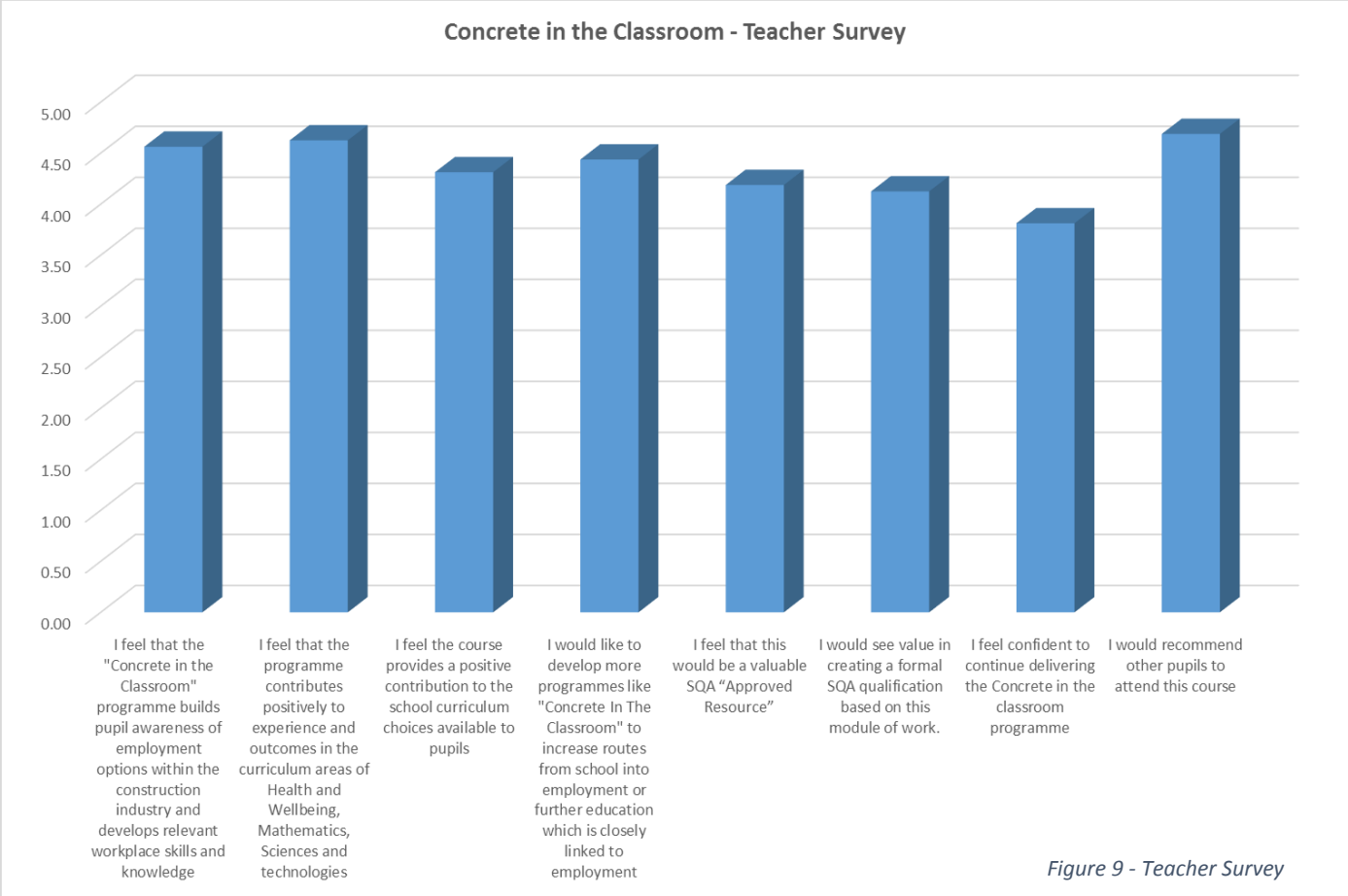
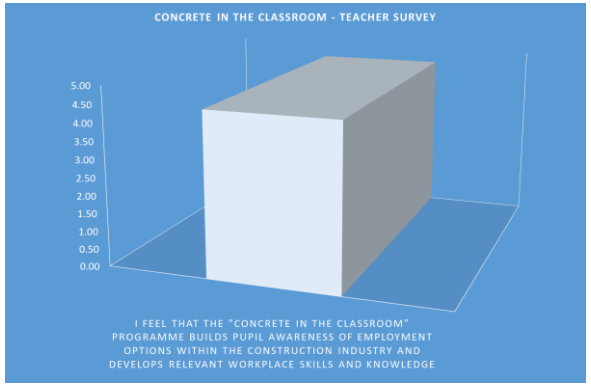


Figure 9 - Teacher Survey

Teaching staff from all participating schools were surveyed across a number of questions directly linked to the outcomes that the Concrete in the Classroom Programme hoped to deliver for schools and teachers. The response to the programme from teaching staff was overwhelmingly positive with average responses to in excess of 4 for all questions apart from 1.

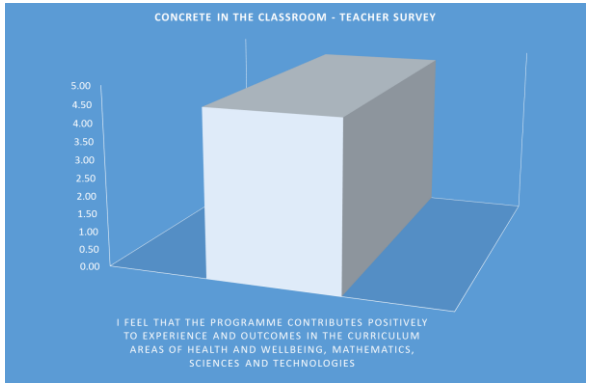
"Concrete in the Classroom is a remarkable programme. Its practical nature engages pupils interest and provides an excellent introduction to the construction industry. The programme also supports teachers by addressing many of the themes that underpin the Curriculum for Excellence"

"Really Impressed at the quality of the resources and materials in the learning pack. The delivery and presentation of the materials saw pupils and staff engaged in every session"



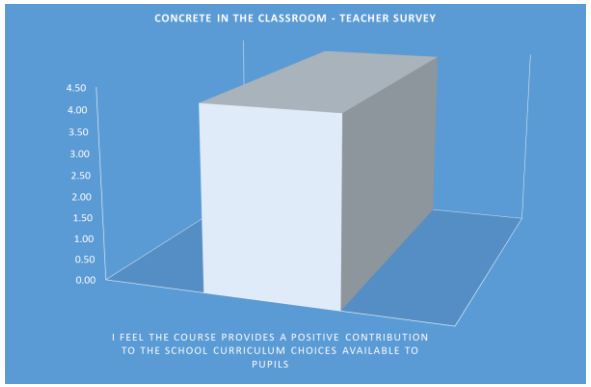
Question 1 – Teachers feel that the "Concrete in the Classroom" programme builds pupil awareness of employment options within the construction industry and develops relevant workplace skills and knowledge.

Teachers responses to this questions ranked 3rd highest with an average score of 4.56. It is becoming increasingly important for school based education, not just tertiary education sector to establish closer links to industry to ensure young people have not only the best education possible but an education experience that prepares them for employment in terms of appropriate skills and knowledge and experience. All teaching staff felt that the Concrete in the Classroom Programme contributed positively to this outcome.



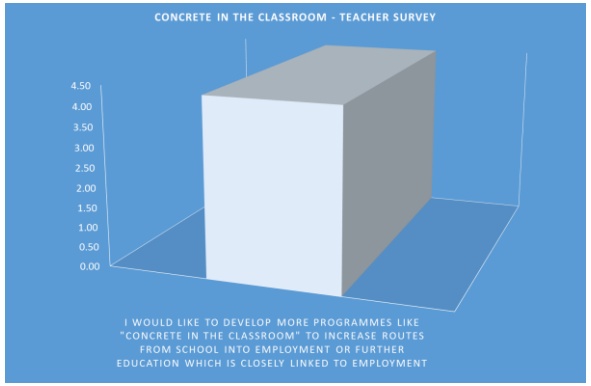
Question 2 – Teachers feel that the programme contributes positively to experience and outcomes in the curriculum areas of Health and Wellbeing, Mathematics, Sciences and technologies

Teachers responses to this questions ranked 2nd highest with an average score of 4.63. It was felt that the programme contributed very positively to the Curriculum for Excellence in a number of different ways and in particular brought to life many of the theories that are taught in more academically focussed subjects such as maths and sciences. It was also a good example of how and why schools should build more partnerships with other industry sectors to enrich and expand the learning opportunities, experiences and outcomes for young people.



Question 3 – Teachers feel the course provides a positive contribution to the school curriculum choices available to pupils

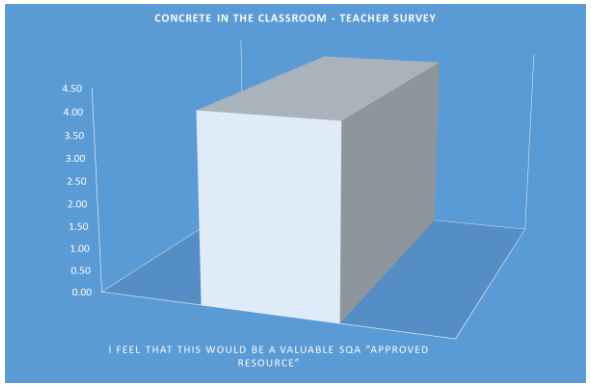
Teachers responses to this questions ranked 5th highest but still with an average score of 4.31. It was felt that the programme contributed very positively to the curriculum choices available for pupils and Teaching staff felt strongly that more courses and programme like CIC should be made available to pupils and this approach was consistent with the core values and principles enshrined in the Curriculum for Excellence



Question 4 – Teachers would like to develop more programmes like "Concrete In The Classroom" to increase routes from school into employment or further education which is closely linked to employment

Teachers responses to this questions ranked 4th highest but still with an average score of 4.44. All teaching staff could see and appreciate the value that CIC and other programmes that are focussed on developing practical skills, knowledge and experience directly linked to employment.

Teachers also recognised that this hands on, practical skills based learning experience is more suited to some individuals learning styles and by offering more similar programmes, improves the chances for success for many young people.

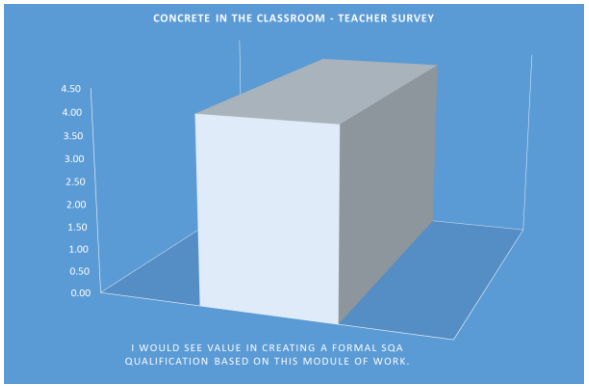


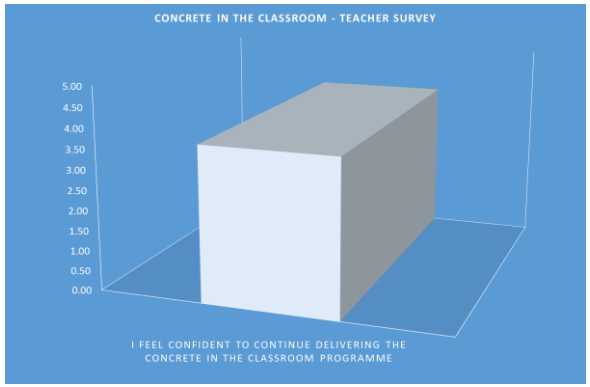
Question 5 – Teachers feel that this would be a valuable SQA "Approved Resource"

Question 6 – Teachers feel that there would be value in creating a formal SQA qualification based on this module of work.

Teachers responses to this questions ranked 6th and 7th lowest but still with an average score of 4.19 and 4.13 respectively.

In general teaching staff could see the value of seeking more formal accreditation from the SQA for the Concrete in the Classroom programme to ensure pupils participating got the maximum return for their participation and learning.





Question 7 – Teachers feel confident to continue delivering the Concrete in the classroom programme

Teachers responses to this questions ranked the lowest with an average score of 3.81.

The approach taken from the outset of the programme delivery is one of long term sustainability through building capacity within schools to take on the direct delivery of the programme. This is intended to be a staged process with stage one being delivered by external resources, stage two being joint delivery between the school and external resources and stage 3 being school delivery.

To support this transition an additional CPD training day was provided for teaching staff. A summary of feedback from this event is detailed below in **Figure 10**

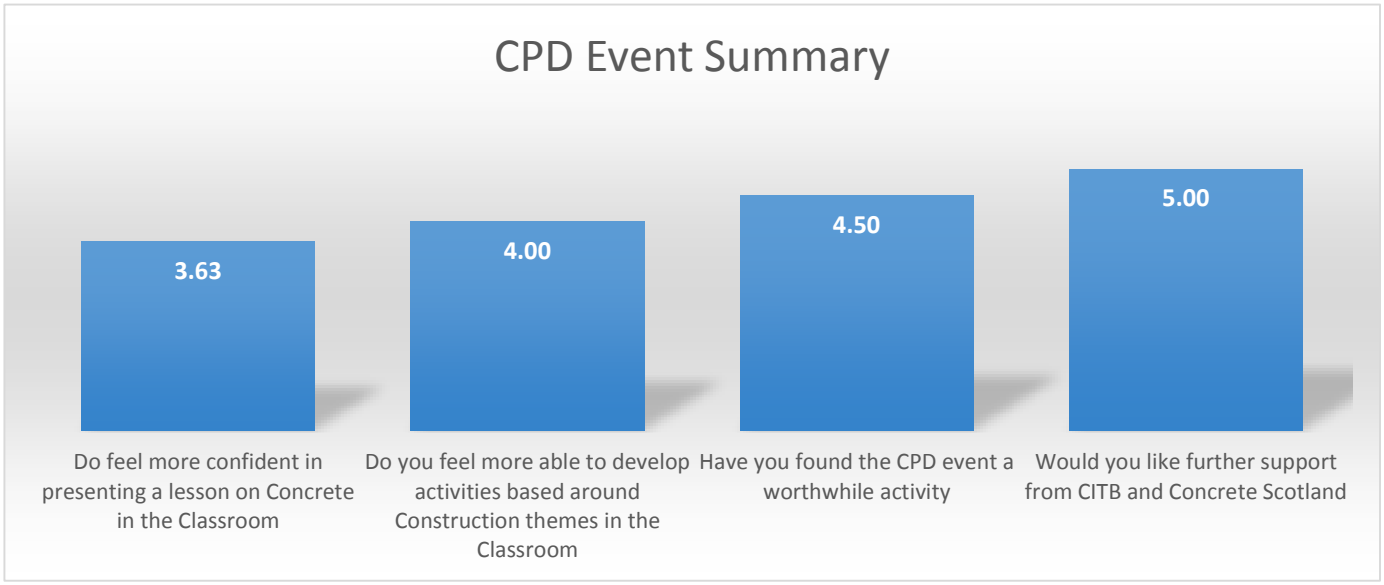


Figure 10 – Teacher CPD Event Survey

Feedback from teachers following this CPD event was very positive however it served to demonstrate that there is more support and capacity building required before teachers feel suitably skilled and knowledgeable to take on the delivery of the programme.

Consideration should also be given to whether or not programmes like Concrete in the Classroom are better delivered by those with industry expertise and experience as this clearly added value to the programme and allowed links to be made more readily with other industry and sector partners. Indeed a number of teaching staff commented on this fact and how difficult and challenging they found it to make links to industry partners.

Programme Outcomes – Industry Partners

- ✓ **Partner Organisations feel that the "Concrete In The Classroom" programme increases awareness of career opportunities within the construction industry.**
- ✓ **Partner Organisations feel that the "Concrete In The Classroom" programme develops valuable industry relevant skills and knowledge.**
- ✓ **Partner Organisations feel that the "Concrete In The Classroom" programme helps to build positive links between industry and Education.**

One of the unique features and benefits of the Concrete in the Classroom programmes was the high number of Industry and Sector partners engaged. This was a unique feature of the programme and helped to ensure that the programme design included skills, knowledge and experiences that were relevant and valued by industry partners and the programme delivery benefited from insight, experience and expertise that brought the whole programme to life engaging pupils in a "real life" learning experience that involved discussions and activities linked to the world of employment and in particular the construction industry.

All partners who were surveyed felt that the programme contributed significantly developing relevant skills and knowledge and that it provided a great opportunity to develop and improve links between education and industry sectors and help to foster an increased level of awareness of career opportunities within the construction industry.




Conclusions

Strategic Fit

The CIC Programme has demonstrated that it is closely aligned to and positively impacts upon key strategies, policies and priorities at a National, Local and Industry.

- ✓ The programme has proven to be effective at providing young people with knowledge, skills and experience that is relevant to and valued by industry partners.
- ✓ The programme has been successful at developing partnerships and collaboration between Industry, education and training stakeholders. This has ensured that programme design and delivery has reflected stakeholder priorities
- ✓ The learning experience has proven to be a successful format for engaging young people and maintaining high levels of interest and participation.

Industry Partner Outcomes

The CIC Programme was developed by individuals and organisations who have experience and expertise within the construction industry. This has ensured that the course content and outcomes are relevant to and of benefit to the industry.

- ✓ Practical industry knowledge and skills are provided to young people.
- ✓ Awareness of employment opportunities within the construction industry are increased.
- ✓ The programme develops positive links between education, training provides and industry partners and provides an opportunity to influence and shape some aspects of school based learning to better meet the needs of industry.

Participant Outcomes

The evidence collected before, during and after the programme, demonstrates that many positive outcomes were experienced by those that took part.

- ✓ There is clear evidence to show that the knowledge base that pupils had in relation to Concrete and the Construction Industry were improved.
- ✓ The evidence also shows that knowledge and awareness also improved in terms of career opportunities within the construction industry.
- ✓ The evidence also demonstrates that there were significant outcomes achieved in terms of participant skills in the process of making concrete.
- ✓ Participants who took part in the programme engaged very positively with this form of learning experience and indicated very strongly that there was demand for more skill based courses of this type.

The programme provided a valuable link between participants and Industry Contacts and potential employers.

Teacher and School Outcomes

Feedback from the teachers and schools involved in the programme has been very positive and demonstrates;

- ✓ CIC enhances choices for pupils as part of the wider Curriculum for Excellence.
- ✓ Practical, hands on learning experiences are a more effective way for some young people to develop.
- ✓ The programme supports, compliments and helps to bring to life the STEM based subjects and makes the link between education, employment and work place skills and knowledge.
- ✓ There would be benefits to the pupils and schools if the programme could become approved and certified by the SQA.
- ✓ The benefits of developing more structured links between education and industry partners

CITB Outcomes

- ✓ CIC is a positive example of how education, industry and skills and training providers can collaborate and work together to help stem the skills shortages that have been identified within the Construction Sector and ensure the supply of training meets industry requirements.
- ✓ The Programme also significantly improves levels of engagement between schools and employers to improve the awareness and appeal of working in construction to young people.

Learning for the future

Provision of tangible resources and information relating to educational opportunities, career choices and pathways within the construction industry could be provided at the end of the programme to increase awareness

A gap exists between boys and girls in terms of knowledge and awareness of employment opportunities within the construction industry. More could be done to reduce this gap by positively target marketing to females

Programme Outcomes improved with age. This may indicate that the programme as it stands is more suitable for older pupils. To maximise value for younger ones, some course redesign may be required to improve engagement and the learning experience

Demand is high from young people and teachers for more relevant, practical, skills based learning experiences to be offered by schools. Opportunities should be considered to expanding the CIC concept into other areas

Individual Learning Styles differ and some young people respond better to more practical hands on experiential learning. The CIC Programme offers these individuals a positive learning experience that can increase levels of confidence and encourage further learning

Levels of pupil engagement and participation were very high during the 5 week programme. Teaching staff and pupils felt that this was as a result of a more informal teaching style, practical exercises and more relaxed atmosphere

The programme benefits greatly from being delivered by those that have industry experience and expertise. This brings a level of insight that is not easily replicated by academic teaching staff

One of the significant benefits that arose from the CIC programme was the creation of better links and wider partnerships between schools and industry partners. Teaching staff reported great difficulty in achieving these links on their own.

Class size also influenced the quality of the learning experience and consideration should be given to limiting programme numbers to between 16 and 20.

There is an appetite for some formal recognition of course participation either as a formal SQA qualification or UCAS points

Further modules of the Concrete in the Classroom resource could be developed to expand on the initial knowledge gained in the CIC program, possible themes being "Formwork", "Surveying", "Design", "Construction

Further modules of the Concrete in the Classroom resource could be developed to Introduce additional materials into the Concrete in the Classroom" format for example: Polystyrene, Asphalts, Timber

There is an opportunity to include the attainment of the CSCS card for over 16's . This was suggested through Education Partners

The programme should consider introducing an end project or activity creating a finished article and giving pupils a tangible outcome from the programme.

Through the program create direct links with GoConstruct and live career opportunities to participating schools, creating more positive destinations for young people.

As part of the legacy two piece metal sample cube moulds would be more suitable for lesson 4

Introduce a formwork lesson where the formwork could be manufactured

Incorporate teaching resources from other subjects such as maths and chemistry to make a direct link between the programme and core academic subjects and emphasis interdisciplinary learning.

About Integratis Consulting

Integratis Consulting is a leading independent consultancy practice and was established to provide innovative and tailored solutions to clients operating across public, private and 3rd Sectors. The company specialises in: ***Strategy/Business Planning, Corporate Governance, Business Intelligence and Research, Community Engagement, Independent Programme Evaluation, and Project Assurance; Social Impact and Social Return on Investment; Feasibility Studies/Project Management.***

Independent Programme Evaluation and Project Assurance – Our objective, dispassionate and rigorous approach to identifying the real difference and impact that organisations programmes and activities make ensures maximum value in terms of evidencing outcomes and identifying opportunities to learn and improve practice and delivery. Our Project Assurance service ensures project design, approach, delivery and evaluation are robust and geared towards optimising benefits realisation for our clients and their key stakeholders.

Strategy and Business Planning – Our strategy and business planning services support organisations to bring their ideas to life, maximising opportunities whilst identifying, understanding and minimising any risks. Our approach is pragmatic and grounded in 25 years of hard earned experience.

Programme Evaluation, Impact and Social Return – This forms part of our core work and focuses on helping organisations to *"prove and improve"* the health, social, economic and educational, outcomes that their activities and services provide for communities, participants, service users and their families.

Feasibility Studies/Project Management – Adopting a robust, rigorous and methodical approach we help organisations to bring their ideas, hopes and ambitions to life in a way that is sustainable, positively engages communities and other key stakeholders and deliver the key outcomes. This work encompasses feasibility studies, options appraisal, business planning and project management and implementation.

Corporate Governance – Good governance is the foundation of any organisation whether it operates within the public, private or charitable sectors. One of only a handful of organisations with CIPFA Governance Qualified staff we help organisations build strong foundations based on the most appropriate governance standards and practices. Allowing the organisation to flourish and grow focusing on making a difference.

Business Intelligence, Research and Community Engagement – All our projects start with developing a robust evidence base utilising the latest intelligence and information appropriate to the specific project. This frequently involves engaging with the key project communities and stakeholders, understanding their priorities and needs whilst building positive relationships and wherever possible co-producing. Our community engagement processes is innovative and tailored to meet the needs of specific target groups and audiences.

For Further Information Contact Neil Ross, neil@integratisconsulting.com or call 07541853021

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