

ECPP7001

The Enquiring Teacher

Student:1800895

Appendix 1: Ethics form approved by UWTSD ethics committee

APPLICATION FOR ETHICAL APPROVAL

In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

Please read the notes for guidance before completing ALL sections of the form.

This form must be completed and approved prior to undertaking any research activity.
Please see Checklist for details of process for different categories of application.

SECTION A: About You (Principal Researcher)

Full Name:	David Harry Bunch				
Tick all boxes which apply:					
Member of staff:	☐	Student:	☒	Honorary research fellow:	☐
Faculty/School/Centre:	Yr Athrofa				
Campus:	SA1				
E-mail address:	1800895@student.uwtsd.ac.uk				
Contact Telephone Number:					
For students:					

Student Number:	1801313 / 1800895	Undergraduate	☐
Programme of Study:	PGCE Primary	Taught Postgraduate	☒
Director of Studies/Supervisor:	Catharine Morgan	Research	☐

SECTION B: Approval for Research Activity

Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)		YES	☒	NO	☐
					Date
If Yes, please indicate source of approval (and date where known):	Research Degrees Committee		☐		
	Faculty Research Committee		☐		
	Other (write in) Catharine Morgan (Module lead)		☐	18/01/19	

Approval in principle **must** be obtained from the relevant source prior to seeking ethical approval.

SECTION C: External Ethical Guidance Materials

Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines.	
BERA: Ethical guideline for educational research 2018	☒
UWTSD: Research Ethics & Integrity Code of Practice	☒
EWC: Code of Professional Conduct and Practice for Registrants with the Education Workforce Council	☒

SECTION D: External Collaborative Research Activity

Does the research activity involve collaborators outside of the University?	YES	☐	NO	☒
If Yes, please provide the name of the external organisation and name and contact details for the main contact person:				
Institution	N/A			
Contact person name	N/A			
Contact person e-mail address	N/A			

Where research activity is carried out in collaboration with an external organisation

Does this organisation have its own ethics approval system?	YES	☐	NO	☒
If Yes, please attach a copy of any final approval (or interim approval) from the organisation				

SECTION E: Details of Research Activity

Indicative title:	How can we improve student engagement through questioning strategies?
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Proposed start date:	20/02/2019	Proposed end date:	March 2019
Purpose of research activity (including aims and objectives) Outline the purpose, aims and objectives of the research activity, including key research questions. Show briefly how existing research has informed the proposed activity and explain what the research activity will add and how it addresses an area of importance. (Maximum 300 words) This research article proposes to explore the relationship between questioning strategies and student engagement in the classroom. It is evident that effective learning takes place within a classroom when students are active and engaged in their learning (Donaldson 2015). This research will attempt to improve student engagement in the classroom by using certain questioning strategies to enhance student involvement. Questioning strategies are being used as the focus of the research activity because questioning is a fundamental principle for assessment for learning (Welsh Government 2010). Black and William (1998) argue that assessment for learning is an essential component of classroom work and that its development can raise student achievement standards. Specific questioning between teacher and pupils should be reflective and focused to explore understanding, and conducted so that all pupils are engaged and express their ideas (Black and William, 1998). The Welsh Government (2010) also produced a document stating that questioning strategies that promote engagement from everyone in the classroom and creates an effective learning environment. This corresponds with objectives of the research study, that is to improve student engagement in the classroom through questioning strategies. Additionally, Donaldson (2015) who provided the review and four purposes for the forthcoming curriculum in Wales, also suggested students should be able to express ideas through discussion in the classroom. Once more, this supports the purpose of the research article to use specific questioning strategies to involve everyone in the classroom. The research will add to this field of study by exploring which specific questioning strategies are effective for student engagement. This research study proposes to enhance the arguments from Black and William (1998) that questioning strategies can improve student engagement in the classroom. It will address an area of importance by exploring a specific questioning strategy to increase student engagement in the classroom. (this box should expand as you type)			
Proposed methods Provide a brief summary of all the methods that may be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. (Maximum 600 words) • This research article will use the lesson study model as a fundamental model for the research activity. Lesson study is a programme that involves two investigators working in partnership to plan lessons that address a shared learning goal for pupils. • Originating in Japan, the lesson study model is being frequently used in the UK under the research of Peter Dudley. Dudley (2011) suggests that this model focuses on the development of teacher practice knowledge. Through the process of joint planning, joint observation and joint analysis there are various perspectives of pupil learning (Dudley 2011). • The lesson study process begins with the group planning the first research lesson, then teaching/observing the first lesson. Followed by interviewing the selected pupils and discussions in the group for what needs to be changed for the second lesson. The next stage involves the group planning the second research lesson, then that lesson being taught/observed. In addition, the selected students are interviewed, and the group finalise discussions and overall findings (Dudley 2011).			

- The research lessons are being observed by the other investigator in the research group as it is considered by Herr (2006) as one of the best methods for learning about children. Herr (2006) argues that most of our knowledge about children's learning and growth is the result of some form of observation. The group will select a certain number of children before the lesson starts to observe, which will be followed by an interview process, depending on consent forms and if the selected participants are willing to do so.
- The investigators will be teaching in their respective schools and the other member of the group will be doing the observation. This is because, as Chesterfield (1997) argues it ensures that the typical school life will be recorded in the research. Rather than the lesson being taught from an outsider of the school which can affect the data recorded (Chesterfield 1997).
- The research will then involve a semi-focused group interview with the selected participants (ethical considerations will be cited further on in this section). The investigators will ensure there is a feeling of security and comfort for the participants by holding the interview in a comfortable environment the participants are familiar with (Cohen et al 2011). Cohen et al (2011) propose that when interviewing children, it is important to keep them focused on the task in hand. This is more likely to occur when the children are being interviewed by someone they are familiar with, such as one of the investigators.
- The investigators will also audio record the semi-focused group interview. This is because it makes possible certain types of qualitative analysis, such as conversation analysis (Cohen et al 2018). Cohen et al (2018) argue that this research method allows the investigators to obtain data in an efficient manner, recording the interview on paper would prove to be difficult and time consuming.
- The investigators will use the Brookfield model of reflective practice with some elements of Gibbs' model of reflective practice. Brookfield's' four lenses corresponds with the wider perspective theme of the research. Whereas Gibbs' model puts more emphasis on the individual element of reflection. Following this, the research will have abroad reflective practice to improve the research lessons.
- Ethical considerations that will take place are in accordance to the guidelines from BERA 2018, Education Workforce Council Code of Professional conduct and the UWTSD Research Ethics Code of Practice. To ensure participant safety these principles will be considered, as well as anonymity, confidentiality, care and respect. Due to the involvement of pupils in the research, the study will follow Article 12 from UNCRC which states the right of children to express their opinions.

(this box should expand as you type)

Location of research activity

Identify all locations where research activity will take place.

To protect the identity of the schools in research, the schools will be labelled “School A” and “School B” and are both located in South Wales.

School A is a small primary school that provides education for 3-11 year olds and has over 250 pupils registered at the school (Estyn 2017). School A’s percentage of students eligible for free school meals is 5%.

School B is a large primary school that provides education for 3-11 year olds and has over 700 pupils registered at the multiform entry school. School B’s percentage of students eligible for free school meals is 11% (Estyn 2015).

The national average of students eligible for free school meals in schools is 19%.

(this box should expand as you type)

Research activity outside of the UK

If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural sensitivities or vulnerabilities of participants.

(this box should expand as you type)

SECTION F: Scope of Research Activity

Will the research activity include:	YES	NO
Use of a questionnaire or similar research instrument?	☐	☒
Use of interviews?	☒	☐
Use of diaries?	☐	☒
Participant observation with their knowledge?	☒	☐
Participant observation without their knowledge?	☐	☒
Use of video or audio recording?	☒	☐
Access to personal or confidential information without the participants’ specific consent?	☐	☒
Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?	☐	☒
Performance of any acts which may cause embarrassment or affect self-esteem?	☐	☒
Investigation of participants involved in illegal activities?	☐	☒
Use of procedures that involve deception?	☐	☒
Administration of any substance, agent or placebo?	☐	☒

Working with live vertebrate animals?	☐	☒
Other primary data collection methods, please explain in this box	☒	☐
Reflection		

If NO to every question, then the research activity is (ethically) low risk and **may** be exempt from **some** of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

SECTION G: Intended Participants

Who are the intended participants:	YES	NO
Students or staff at the University?	☐	☒
Adults (over the age of 18 and competent to give consent)?	☐	☒
Vulnerable adults?	☐	☒
Children under 18?	☒	☐
Prisoners?	☐	☒
Young offenders?	☐	☒
Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?	☐	☒
People engaged in illegal activities?	☐	☒
Others (please identify):	☐	☒

Participant numbers and source

Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?

Within the research, the whole class will be present in the lesson observation. However, three participants will be selected for the research and interview process. These participants will be selected by choosing students from a range of abilities and genders in the class. This will be done to gain a broad and diverse perspective of how the students' engagement can be improved. It must be noted that there will be consent forms given to all pupils to act as a contingency plan in case of absentees or participants wanting to withdraw from the research.

(this box should expand as you type)

Information for participants:	YES	NO	N/A
Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	☒	☐	☐
Will you tell participants that their participation is voluntary?	☒	☐	☐
Will you obtain written consent for participation?	☒	☐	☐
Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	☒	☐	☐
If the research is observational, will you ask participants for their consent to being observed?	☒	☐	☐
Will you tell participants that they may withdraw from the research at any time and for any reason?	☒	☐	☐
With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☐	☐	☒
Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	☒	☐	☐
Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	☒	☐	☐
If NO to any of above questions, please give an explanation			

(this box should expand as you type)

Information for participants:	YES	NO	N/A
Will participants be paid?	☐	☒	☐
Is specialist electrical or other equipment to be used with participants?	☐	☒	☐
Are there any financial or other interests to the investigator or University arising from this study?	☐	☒	☐
Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?	☐	☒	☐
If YES to any question, please provide full details			
(this box should expand as you type)			

SECTION H: Anticipated Risks

Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them.

If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.

Full risk assessment completed and appended?

Yes

☐

No

✓

Risks to participants

For example: emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information

The research will consider the possible risks to the participants involved in the research:

- The investigators will consider the safeguarding protocols of the UWTSD, School A and School B in relation to the research study.
- The investigators will consider the possibilities of emotional distress of the participants in the interview.
- The participants will be informed of the confidentiality of the data that will be recorded in the interview and the anonymity of the data from the participants.
- The data recorded from the participants will be securely stored in devices that are password protected.
- It will be explained to the students who are not selected in the research that the selection process is in order to gain a diverse perspective of the students from the classroom.

(this box should expand as you type)

If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities

(this box should expand as you type)

Risks to investigator

For example: personal safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest

The research will consider the possible risks to the investigators involved in the research study:

- Possibility of bias in data due to pre-existing relationships with participants.
- Possibility of conflict of interest between my partner and me.
- The risk of accusation of being on my own with the participants will be seized by my partner being present in the interviews.
- The risk of being accused of something in the classroom will be seized with my partner being present for the observation of the lesson.
- Possibility of accusation of falsification of data will be considered.
- The location of the interview of the participants will be in an open area where other adults can be located for both investigators and participants.
- Possibility of child bias due to authoritative figure of investigators being teachers.

(this box should expand as you type)

University/institutional risks

For example: adverse publicity, financial loss, data protection

The investigators understand that during this research they are ambassadors of UWTSD and have a duty to uphold the name of the University. UWTSD works in partnership with both School A and School B, therefore the investigators have a responsibility to behave in a certain manner. My partner and I are working in the schools as part of this relationship and need to respect this rapport by not falsifying any data as it could affect the reputation of UWTSD.

(this box should expand as you type)

Adverse outcomes

List measures put in place to limit any adverse effects or outcomes of research activity where appropriate. Include any emergency protocols.

As previously stated, the investigators will be taking measures to limit any adverse outcomes of the research:

- The investigators are asking permission from School A and School B for the research activity to be taken place in their schools.
- Both schools will be informed of the research activity and its procedures.
- Consent forms will be given to all students present in the classroom to be given to parents/guardians to fully inform all adults and to not mislead students.
- Students will be informed of the research activity taking place and that it is their choice to take part in the research; they can withdraw from the research at any point.
- The participants involved in the interview will have procedures set out for them to withdraw if they want to.
- The location of the interview will be in an open area of the school where adults are accessible for both participants and investigators.
- All data collected from research will be securely stored on devices that are password protected and are the possessions of the investigators.
- There will be no falsification of data collected to ensure the research is valid and to uphold the reputation of UWTSD.

(this box should expand as you type)

Disclosure and Barring Service

If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.

Has a DBS certificate been obtained?

YES

NO

N/A

✓

☐

☐

SECTION I: Feedback, Consent and Confidentiality

Feedback

What feedback will be provided to participants, how will this be done and when?

Feedback will be given to students, head teachers and parents/guardians on request.

(this box should expand as you type)

Informed consent

Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded.

An explanation of the research activity will be outlined and explained to all students who will be involved in the lesson. This will be followed by distribution of a consent form which is to be given to parents/guardians as the potential participants are under the age of 18. The form will explain the research activity and its methods. Assent from the students and consent from parents/guardians will be collected and recorded. My partner and I will then review potential participants that will give the research a broad perspective with diverse abilities. It must be noted that participants will be frequently reminded that they are able to withdraw from the research whenever they wish to do so.

(this box should expand as you type)

Confidentiality / Anonymity

Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.

Anonymity and confidentiality will be ensured by not disclosing any information in any way for the individuals to be traced or identified. Procedures will also take place to ensure there can be no connection made between participants and their responses. Anonymisation of data will be ensured wherever possible, identifying will be changed or removed from the study. Direct and indirect identifiers will be considered within the research. Participants will not be named, and their identity will be protected by using names such as "Pupil 1" and "Pupil A".

(this box should expand as you type)

SECTION J: Data Protection and Storage

In completing this section refer to the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (<http://uwtsd.ac.uk/library/research-data-management/>).

	YES	NO
Does the research activity involve personal data (as defined by the Data Protection Act)? "personal data" means data which relate to a living individual who can be identified— (a) from those data, or (b) from those data and other information which is in the possession of, or is likely to come into the possession of, the data controller, and includes any expression of opinion about the individual and any indication of the intentions of the data controller or any other person in respect of the individual.	☐	☒
If YES, provide a description of the data and explain why this data needs to be collected: (this box should expand as you type)		
Does it involve sensitive personal data (as defined by the Data Protection Act)? "Sensitive personal data" means personal data consisting of information as to – (a) the racial or ethnic origin of the data subject, (b) his political opinions, (c) his religious beliefs or other beliefs of a similar nature, (d) whether he is a member of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992), (e) his physical or mental health or condition, (f) his sexual life, (g) the commission or alleged commission by him of any offence, or (h) any proceedings for any offence committed or alleged to have been committed by him, the disposal of such proceedings or the sentence of any court in such proceedings.	☐	☒
If YES, provide a description of the data and explain why this data needs to be collected: (this box should expand as you type)		
Will the research activity involve storing personal data on one of the following:	YES	NO
Manual files (i.e. in paper form)?	☒	☐
University computers?	☐	☒
Private company computers?	☐	☒
Home or other personal computers?	☐	☒
Laptop computers/ CDs/ Portable disk-drives/ memory sticks?	☒	☐
"Cloud" storage or websites?	☐	☒
Other – specify:	☐	☒
For all stored data, explain the measures in place to ensure data confidentiality, including details of password protection, encryption and anonymisation: The data recorded for the study in question will be obtained and stored in two ways: Manual files (paper copies) – where observation notes, interview responses and reflections will be written down on paper. This data will be secured by being stored in a padlock drawer		

at the property of one of the investigators. The key to this lock will be the responsibility of one of the investigators; this will ensure that all data will be protected. • Laptop computers/memory sticks – data will also be stored on laptops and memory sticks. These devices will be password protected and therefore secured. The devices will be owned by the investigators and it will be their responsibility to ensure the data stored is secured. • Information regarding the research, will be kept confidential and anonymised. The investigators will ensure this by removing any information that can be used to identify those involved in the research activity on all stored data. (this box should expand as you type)		
Will the research activity involve any of the following activities:	YES	NO
Electronic transfer of data in any form?	☐	☒
Sharing of data with others at the University?	☒	☐
Sharing of data with other organisations?	☐	☒
Export of data outside the European Union or importing of data from outside the UK?	☐	☒
Use of personal addresses, postcodes, faxes, emails or telephone numbers?	☐	☒
Publication of data that might allow identification of individuals?	☐	☒
Use of data management system?	☐	☒
Data archiving?	☒	☐
If YES to any question, please provide full details, explaining how this will be conducted in accordance with the Data Protection Act (and/or any international equivalent): The data recorded for the research activity will be shared with my research partner as this is a joint research activity. The data obtained will be archived in a manner referring to the UWTSD Research Data Management Policy. It will be stored on the investigator's personal possessions and kept at their personal properties. The investigators will consider the Data Protection Act (1998) and additional ethical considerations set out by UWTSD Research Data Management Policy when archiving data. This will be done by keeping all data collected for the research anonymised and confidential. The identity of participants will be protected by removing information to connect them with responses. Data collected will not be accessed by the investigators and will be stored in password protected devices and padlocked storage spaces. It must be noted that the data will only be kept for the duration of the research activity and module. Once the research is concluded the data will be destroyed. (this box should expand as you type)		

List all who will have access to the data generated by the research activity:
My partner and I. (this box should expand as you type)
List who will have control of, and act as custodian(s) for, data generated by the research activity:
My partner and I. (this box should expand as you type)
Give details of data storage arrangements, including where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.

The data will be stored on password protected laptops and memory sticks. Paper copies will also be made, and will be kept in padlocked drawers in the investigators' personal property. The data will be stored for the duration of the research activity and the assignment. Once the research activity is finished, the data will be destroyed as soon as possible.

The data will be stored in a manner relating to UWTSD systems, such as the UWTSD Research Data Management Policy which are appropriately firewalled. It must be noted that the data will be written up into an essay to submit to UWTSD. Following this submission, all data recorded and obtained will be destroyed.

(this box should expand as you type)

SECTION K: Declaration

The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants.

In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's [Research Ethics and Integrity Code of Practice](#)

Signature of applicant:

Date:

For students:

Teacher / Senior Mentor / Headteacher:	
Signature:	
Date:	

Supervisor:	
Signature:	
Date:	

Checklist: Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

☒	I have read the guidance notes supplied before completing the form.
☒	I have completed ALL RELEVANT sections of the form in full.
☒	I confirm that the research activity has received approval in principle
☐	I have attached a copy of final/interim approval from external organisation (where appropriate)
☐	I have attached a full risk assessment (and have NOT completed Section H of this form) (where appropriate)
☒	I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.
☒	I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Head of School.

RESEARCH STUDENTS AND STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk, with the title 'Ethical Approval' followed by your name.

You will be informed of the outcome of your claim by email; therefore it is important that you check your University and personal email accounts regularly.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

Appendix 2: Observation Schedule Class 1 and Class 2

Date: 21/02/2019
Location: School 1

Time	Action
0830	Researcher 1 and Researcher 2 to meet at School 1
0900 - 1300	Researcher 2 to observe Lesson 1 and record notes
1300 - 1530	Researcher 1 and Researcher 2 to interview case students and record notes
Following interviews	Researcher 1 and Researcher 2 to discuss findings, suggest improvements and plan for Lesson 2

Date: 22/02/2019
Location: School 2

Time	Action
0830	Researcher 1 and Researcher 2 To meet at School 2
0900 - 1300	Researcher 1 to observe Lesson 2 and record notes
1300 - 1530	Researcher 1 and Researcher 2 to interview case students and record notes
Following interviews	Researcher 1 and Researcher 2 to discuss findings.

Observation strategy

As per Chesterfield (2018) the observer will be passive and act to minimise interaction with the class and lesson. The presence and role of the observer will be announced to the children. Notes will be taken in 5 minute intervals.

School 1, Class 1, Lesson 1

Time	Child 1	Child 2	Child 3
Time: 0900 Teacher (Researcher 1) Asks for volunteers to an open question	Engagement: 4 Additional notes: Child raises had to answer question	Engagement: 5 Additional notes: Child raises had to answer question	Engagement: 2 Additional notes: Child looks aware but is looking at book.
Time: 0905 Teacher continues line of open questioning using P.P.P.B Wait time approx 2 secs	Engagement: 4 Additional notes: Volunteers answer with enthusiasm	Engagement: 4 Additional notes: Volunteers answer with enthusiasm	Engagement: 2 Additional notes: When directly asked answers curtly and looks uncomfortable - rubs face
Time: 0910 Teacher asks open question using T.T.Y.P	Engagement: 3/4 Additional notes: Child 1's learning partner answers following discussion between both	Engagement: 4 Additional notes: Child answers for both partners	Engagement: 3 Additional notes: Child is not initially directly asked question but is actively watching those who do answer. Smiles and gives short answer then looks down at table
Time: 0915 Teacher asks open question and children are to respond by working in partners and using mini	Engagement: 5 Additional notes: engaged in discussion with partner and writing on whiteboard for both children	Engagement: 5 Additional notes: engaged in discussion with partner and both children share	Engagement: 4 Additional notes: Shares board with partner. Less discussion than child 1 and 2

whiteboards (2 minute timer)		writing on whiteboard	
Time: 0920 Teacher poses open question and uses randomiser to select pair to answer	Engagement: 5 Additional notes: Answers for partner. After answering watches others who answer.	Engagement: 4 Additional notes: Actively watching teacher - ready to answer	Engagement: 4 Additional notes: Gives short answer when asked but plays with pen when not engaged by teacher. Teacher praises and asks to expand answer and the child responds with more enthusiasm
Time: 0925 Teacher asks for volunteers to an open question	Engagement: 3 Additional notes: Does not volunteer - appears to be listening but plays with pen	Engagement: 3 Additional notes: has head in hands and writes on board - turned away from teacher - lets partner answer	Engagement: 5 Additional notes: keen to add opinion to group.
Time: 0930 Teacher asks open question using T.T.Y.P	Engagement: 3 Additional notes: Looks at teacher but continues to play with pen	Engagement: 3 Additional notes: Puts hand up but is not actively looking at teacher	Engagement: 3 Additional notes: Watching teacher but is fidgeting in chair
Time: 0935 Lesson ends	Engagement: Additional notes:	Engagement: Additional notes:	Engagement: Additional notes:

School 2, Class 2, Lesson 2

Time	Child X	Child Y	Child Z
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Time: 0900 Teacher (Researcher 2) Word Wave strategy	Engagement: 3 Additional notes: Child engaged in strategy.	Engagement: 4 Additional notes: Child discusses personal opinion.	Engagement: 3 Additional notes: Child prompted by teacher.
Time: 0905 Popcorn strategy	Engagement: 3 Additional notes: Listens to others.	Engagement: 4 Additional notes: Happy to engage.	Engagement: 3 Additional notes: Communicated through actions of understanding.
Time: 0910 Teacher uses TPS strategy with sufficient wait time	Engagement: 5 Additional notes: Great communication with partner on ideas.	Engagement: 4 Additional notes: Worked well with partner.	Engagement: 4 Additional notes: Wrote own ideas, then stopped to discuss before carrying on.
Time: 0915 Teacher uses lollipop method to share ideas.	Engagement: 4 Additional notes: Watched, listened and engaged hoping for a turn.	Engagement: 4 Additional notes: Enjoyed having the attention of the whole class to discuss ideas with everyone.	Engagement: 2 Additional notes: Disengaged and uninterested to what others had to say.
Time: 0920 Teacher asks for volunteers to share ideas.	Engagement: 4 Additional notes: Completed activity and willing to share ideas.	Engagement: 2/3 Additional notes: Finished task and then played with pens rather than volunteering to share.	Engagement: 2 Additional notes: Did not want to engage but had a brilliant answer that teaching assistant prompts.
Time: 0925 Teacher asks for volunteers to share answer	Engagement: 5 Additional notes:	Engagement: 4 Additional notes: Engaged in activity	Engagement: 4 Additional notes: Discusses answers with peer.

and then stick on board.	Always engaged and enthusiastic to share ideas.	but did not volunteer until peers did.	
Time: 0930 Teacher uses PPPB strategy	Engagement: 4 Additional notes: Listens attentively to teacher and peers.	Engagement: 4 Additional notes: Very focused and engaged on task.	Engagement: 3 Additional notes: Needed more time to think of an answer.
Time: 0935 Teacher uses 1:1 question.	Engagement: 4 Additional notes: Listens to teacher and answers questions enthusiastically.	Engagement: 4 Additional notes: Continues engagement from previous tasks.	Engagement: 2 Additional notes: Needed prompts to produce answers.
Time: 0940 Teacher uses open ended discussion questions.	Engagement: 5 Additional notes: Willing to give opinions and share opinion on peers' answer.	Engagement: 5 Additional notes: Listened to other students' opinions and was enthusiastic when sharing their own.	Engagement: 3 Additional notes: Needed the teacher to repeat the question in order to answer.
Time: 0945 Lesson ends.	Engagement: Additional notes:	Engagement: Additional notes:	Engagement: Additional notes:

Appendix 3: interview transcripts

School 1, Class , Lesson 1.
Students (1), (2), (3)

1. How did you feel about the lesson?

Student 1 – Really good.

Student 2 – I really enjoyed, I liked the evaluation part.

Student 3 – I enjoyed the lesson and finding out what we can do next time we experiment.

2. What did you learn?

Student 1 – Different ways we can improve the experiments.

Student 2 – We learnt how different people think.

Student 3 – That people think differently.

3. What did you say?

Student 1 – I spoke about how successful my experiment was.

Student 2 – I said how I would change my filter for next time.

Student 3 – I said sand is the best filter and I think I am right about that.

4. How did you feel answering the questions?

Student 1 – I was comfortable.

Student 2 – Yeah, I was comfortable.

Student 3 – I felt okay.

5. How did you feel about being asked questions?

Student 1 – I really didn't mind.

Student 2 – I didn't mind.

Student 3 – I was a little bit nervous.

6. How did you feel when I used the lollipop method to ask questions?

Student 1 – Little bit nervous.

Student 2- Little bit nervous.

Student 3 – I did not feel nervous, I was okay with it.

7. How did you feel about giving your opinion on someone else's answer?

Student 1 – A bit nervous.

Student 2 – I didn't mind doing it I was just nervous to find out what they would say back to me.

Student 3 – I am okay about it.

8. How did you feel about talking in front of the class?

Student 1 – Um, I was a little nervous.

Student 2 – Little bit nervous yeah.

Student 3 – I don't feel comfortable talking in front of the whole class, I prefer speaking to you on my own.

9. How do you feel when discussing the answer with your partner first?

Student 1 – I like working in pairs and groups first.

Student 2 – I think is better to work in groups first because your partner can help you find the answer if you don't know it.

Student 3 – I think its bad to work in pairs because if you and your partner do not agree on something then it will cause arguments.

10. When the teacher counts how many people are trying to answer the question by putting their hands up, how does this make you feel?

Student 1 – It gives me confidence to have a go.

Student 2 – I feel more confident when other people are putting their hands up to answer.

Student 3 – This makes me nervous because it shows that other people know the answer and makes me think I should know it.

11. Do you like being asked questions?

Student 1 – I am fine with being asked questions, if you get something wrong you can learn something new by getting it right. I am only nervous if I do not know what I am talking about.

Student 2 – I like to answer questions, but I feel more comfortable when I understand the topic.

Student 3 – Somethings I want to answer and somethings I don't. I like to answer when I know the answer.

School 2, Class 2, Lesson 2.

Students (1), (2), (3)

Question 1

How did you feel about the lesson?

(y) Good it was fun. I didn't notice that I got asked that much questions

(x) It was fun, I enjoyed it

(z) It was very fun cooking (student is referring to previous learning which was the aim of this lesson)

What did you learn in the lesson?

(y) I don't know

(x) We got to learn about what everyone thought

(z) We learnt about change (student is referring to previous learning which was the aim of this lesson)

What questions did you answer in the lesson?

(y) I did get asked questions but I can't remember them

(x) I answered one, you asked what were we doing it for and I said raising money for the air ambulance.

(z) No because I don't have a good memory

(y) You did get asked some questions with me didn't you but you can't remember what questions you were asked.

How do you feel when you are asked a question in class?

(Y) I would feel like a shock or like ooh that's a question that tests my mind. It makes me nervous. If I know the answer then I don't really feel nervous, I'm just like well its this, but when I don't know the answer then I am very nervous doing it. Say I knew the answer I would be like whew that's a close one like that.

(X) It depends what sort of question it is. I like getting asked maths questions usually, because I work maths out in my head. When I don't know it when I get asked I just think, and I'm just like do I know this or don't. If it's a maths question I'm comfortable, if I don't know then I'm not very comfortable.

(Z) I don't really know. When I know the answer it makes me feel clever.

(Y) Same thing. I feel clever as well when I get an answer right.

(X) I feel sort of clever but sometimes I feel that I knew that all along and then I feel like I'm not if I didn't know it. If I didn't know it then I wouldn't feel as clever but if I did know it then I would.

When the teacher uses the lollipops how do you feel?

(Y) I feel nervous very nervous I go like that (performs an electric shiver) a little tingly wire like an electric shock.

(X) Because [sic] I don't know, who's going to come out of the lollipops, sometimes I feel a little bit nervous because if my name is pulled out of the jar, that's a little bit of a shock sometimes.

(Z) It depends if it's, if I know the answer or not. If I know the answer I feel its going to be me. If I don't know the answer my brain goes like this (places hands to head and pulses fingers).

If you don't know who is going to be asked does it make you concentrate?

(X) Well because it's random pic f I don't know the answer then I think really hard of what the answer was.

(Y) Well if I was picked well and say I didn't know it, if I didn't know it, it would give me like, I would be frightened, like a little electric shock so a bit frightened.

(Z) well it makes me think of an answer.

How do you feel when you and your partner are asked questions?

(Y) Happy, I just feel happy because I just do, I feel happy. If you are talking to your partner its easy because if you were doing it on your own, it would be like a

bit hard but if you're doing it with a partner you could stick your brains together and think.

(X) It's a little easy to work with your partner because sometimes you might not but your partner knows it there might be a better answer. But then if your partner doesn't know it you can help them. Because if your partner didn't know and they didn't ask you they would have got the whole work wrong, so its better to work with your partner than on your own.

(Z) I'd say its better to work with your partner because if you are stuck you could just ask them .

(Y) Because then it would be more easier. But if you don't really get on with your partner it's going to be hard for you because if you didn't get on with your partner you couldn't think properly you would need somebody to help you. Sometimes we are happy together and sometimes we are not (referring to student Z). Sometimes we agree and sometimes we don't.

(Z) I'm always happy with you.

(Y) Sometimes I'm angry but still happy.

How do you feel about the popcorn question technique?

(Y) It's fun because it's when you get to show your voice, show your ideas share your ideas

(X) I like sharing stuff with my partner because sometimes its fun your partner gets to know your ideas

(Z) What I like is you can magpie (listen to other student's ideas and inform and develop your own ideas).

(Y) Yeah if you didn't have ideas then you could magpie idea off people to help you.