nextPRACTICE
A guide for conducting classroom-based teacher inquiry

This guide will support teachers who are interested in conducting research as part of their teaching practice. It will help them to develop their own research skills, to contextualise theory, and to contribute to evidence-based practice. It draws upon published research into teacher inquiry, as well as findings relating to classroom inquiry; these have contributed to the development of the nextPRACTICE package. By following the guide, teachers will be able to fulfill the role of teacher-researcher in their school.

nextPRACTICE is a package consisting of a software tool and a method designed to support teacher inquiry; it works on both a school leadership and a teacher level. It is part of the EU-funded Next-Tell project, which develops tools to support 21st century skills in teaching and learning.

What is teacher inquiry?

"Teacher inquiry is a vehicle that can be used by teachers to untangle some of the complexity that occurs in the profession, raise teachers' voices in discussions of educational reform, and ultimately transform assumptions about the teaching profession itself." (Fichtman Dana & Yendol-Hoppey, 2008:1)

Classroom-based inquiry provides teachers with the opportunity to innovate in their own classrooms, exploring tools and techniques which work with their own classes in their own teaching contexts. It can engage teachers at all stages of their career in a dialogue with their leadership teams by feeding into evidence-based practice, which can in turn inform school strategic plans. Rather than relying on professional learning opportunities delivered by outside experts, embedding teacher inquiry into everyday practice allows for sustained professional development as teachers formalise and develop their research skills, while applying pedagogical changes within their lessons. Classroom-based research findings play an important role in demonstrating evidence-based practice, and can provide teachers with robust data which can shape their future practice, and which can inform researchers about teaching practices as they actually occur in classrooms. Bannan-Ritland (2008) describes this recognition of the "power of the context" of classrooms as fundamental to design and research activities (Bannan-Ritland, 2008:249).

Examples of teacher inquiry in practice:

Researchers have worked with teachers completing classroom-based inquiry as part of the Next-Tell project, with school studies focusing on a range of issues, including the use of technology to support collaborative assessment; pedagogical strategies to develop learners' self-regulation; the use of software tools to enhance collaborative skills; and the effects which online testing has on student engagement.

BBubb (2009a) discusses a related approach, describing a school study involving 'action learning sets': groups of teachers who collaboratively engage in inquiry work. These teachers undertook research on a

range of topics, including the use of mobile phones as a learning tool, the role of teachers' body language in the classroom and pedagogies which develop the learning mindset (Bubb, 2009:40).

What are the benefits of inquiry?

Teachers who engage in inquiry-based action research "have not only carried out development work for schools, but have also broadened their knowledge and their professional competency" (Altrichter et al, 2008:6).

The benefits of engaging in teacher inquiry can include:

- An opportunity to extend reflective practice through research at any stage of your teaching career.
- An opportunity to challenge research paradigms relying on 'outside experts', by placing teachers as central stakeholders in the research process through the role of teacher-researcher.
- Opportunities to innovate in the classroom; evaluating the use of pedagogies or learning technologies.
- Immersive CPD in the active combination of theory and practice, contextualising educational research within the classroom environment.

Altrichter et al (2008) reflect on beneficial changes that arose from school studies over a number of years, including development of the capacity to use knowledge produced by researchers as well as conducting their own research; enhancing the collaboration of teachers through action learning sets or groups; and a recognition of teachers' privileged insights into classroom practices which are of value in furthering educational knowledge (Altrichter et al, 2008:6).

Planning your inquiry

Developed alongside teachers in Norway, the UK, Austria and Germany who were engaged in their own inquiry projects, nextPRACTICE offers a method to support teacher inquiry in schools. The method is accompanied by a software tool that can be used to log and share stages of the inquiry plan It incorporates a stage-by-stage research process to shape classroom-based inquiries: the TISL heart, which encourages teacher-researchers to engage in cycles of inquiry for sustained refinement of teaching practice, and ongoing pedagogical innovation.
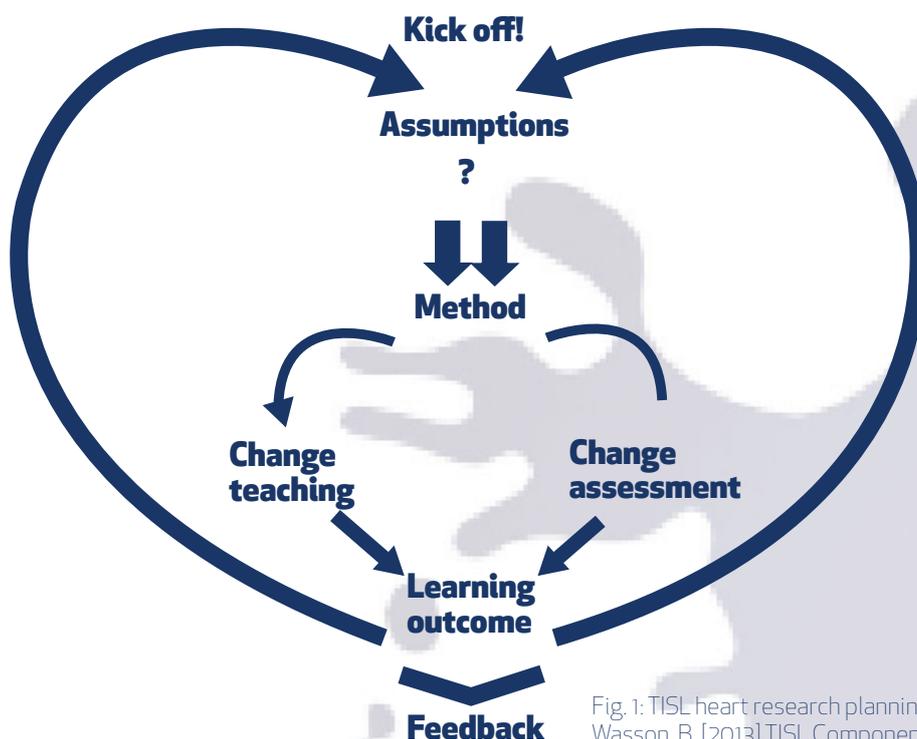

Fig. 1: TISL heart research planning tool (Hansen, C. & Wasson, B. [2013] TISL Components R3.)

The "Teacher Inquiry into Student Learning", or TISL heart (Hansen & Wasson, 2013) is formed of stages which assist the planning of classroom-based inquiry.

Stage 1- Kick off:

The initial stage of the TISL heart encourages teachers to note what generates their interest in undertaking an inquiry. This stage involves identifying what the focus of the research is, and why this focus is of interest.

For example, the teacher of a class of students who have been assigned individual iPads wanted to ensure that the tools were used to best effect. This is also relevant to a strategic goal of her school leadership, which is to employ mobile learning technologies in classrooms effectively. Her 'kickoff' for conducting an inquiry was the introduction of this mobile learning technology to her KS2 classroom; and specifically, her concerns about how to ensure this was of benefit to her learners. She chose to focus on the evaluation of a specific app on learners' story-planning skills, so as to provide a measurable, manageable project which could be embedded into her existing schemes of work without needing her to redesign lesson plans. This stage provides her with a starting point for the design of the inquiry, and also acts as a reminder of her motivation for the project. She starts to form her research question; 'How does an app used to create mind-maps enhance learners' ability to plan stories in KS2 Literacy lessons?'

Stage 2- Assumptions:

This stage of the TISL heart process can be used by the teacher-researcher to formally reflect on assumptions they may have about the focus of their inquiry. It refers to any prior value judgements made about the inquiry focus, and helps teachers to be sure they are asking the right question before they go too far through the process.

For example, the teacher reflects on her assumptions that the students would prefer using technology in class, and that it would positively enhance the teaching and learning process. Her initial inquiry question, 'How does an app used to create mindmaps enhance learners' ability to plan stories in KS2 Literacy lessons?' is modified to reflect this consideration. As a result of this stage, the teacher-researcher's question changes to 'Does using a mindmap app affect learners' story-planning abilities?'

Stage 3- Method (Change Teaching/ Change Assessment):

This stage involves planning the research method which will be employed throughout the inquiry and can include a change to teaching or assessment practices. During this stage, it is important to note the resources available to complete the inquiry, and the types of data collection and analysis which can inform a more robust inquiry design. It is also important to consider whether any factors that are not measured might affect result findings (confounding variables). Focusing on the effects of a specific implemented change can be challenging because of the range of educational initiatives taking place at any one time, though it is important to consider any possible confounding variables to enhance validity of findings.

For example, if a teacher were evaluating the role weekly homework tasks have on student attainment, a confounding variable could be the varying levels of parental support each student receives when completing homework tasks. Therefore research results could be affected by parental support as a confounding variable; it is not just the weekly homework task which could affect student attainment, but the support which they receive to complete such a task.

Collecting and analysing data

Qualitative research can include the use of interviews and focus groups and can be used to obtain opinions and experiences from participants. Interviews that employ open-ended questions can encourage in-depth responses which may not be obtained through the use of a questionnaire. They also allow for the interviewer to further explore answers given during the interview, asking supplementary questions when appropriate. Focus groups can be used to ascertain views in a more conversational format; this can be helpful when working with children and young people. Greene & Hogan (2005) explain, 'the peer support provided in the small group setting may also help to redress the power imbalance between adult and child that exists in one-to-one interviews' (p4), and so the peer support offered through focus groups can be beneficial for teacher-researchers when working with younger learners. Though qualitative data can be beneficial in drawing out in-depth answers from participants, and providing a richer narrative of perspectives and experiences, it should be considered that qualitative findings cannot necessarily be generalised to broader populations than those studied (in relation to TISL, this refers to the student/s whose learning forms the basis of the teacher-researcher's inquiry).

Quantitative research can include the use of questionnaires to obtain information from a large number of participants, or to compare groups, encouraging the possibility of generalising findings more broadly. When planning the research inquiry, it is essential to adopt research methods that suit the motivations of the project.

For example, in a research study with a focus on young people's decision-making processes in relation to applications for higher education places, the first phase of the study was comprised of group interviews, the second a large scale quantitative survey, and the third phase constituted by individual interviews with a sub-sample of survey participants. The quantitative survey generated statistical data relating to the number of students who felt confident in terms of applying to university, as well as capturing numbers of students who intended to apply for a HE place, outlining the relationship between student confidence and actual HE applications. The interviews were able to draw out some explanation of the factors which influenced students' decisions to apply or not to apply for university courses showing, for example, that individuals were influenced by teachers and family members (Hart, 2011:5).

Ethical decisions should be made to ensure that classroom inquiries take place within a set of agreed rules. This list is not exhaustive, but guidelines can involve:

* the voluntary informed consent of participants
* openness and disclosure of the objectives of the research, including making known any predictable detriment which may occur as a result of research participation, and taking steps to minimise the risk of any detriment.
* providing participants with the opportunity to withdraw from the research with no disadvantage to themselves
* considerations of participant privacy, including confidentiality and anonymity (and taking the Data Protection Act into account)
* guidelines on the disclosure of illegal activity

(British Educational Research Association, 2011: 5)

There are additional ethical considerations to be made when working in educational contexts. In addition to seeking advice on the implications of school-specific policies relating to classroom-based inquiry, additional ethical considerations should be taken into account for inquiries which involve work with children, young people and vulnerable adults. The production of a research project summary handout can provide accompanying information for consent forms for participation. Additional guidelines on can be found on the British Educational Research Association website (**www.bera.ac.uk**).

This stage involves the planning of who will be involved in the research, and where and when certain research activities will take place. The development of reflective, research-engaged practitioners is important; however, because of the multitude of demands which the teaching profession entails, balancing the roles of teacher and researcher can be challenging. When designing the classroom inquiry, steps can be taken to embed research plans into existing schemes of work, so as to minimise the impact on additional workload.

For example, the teacher decides to formatively assess students' activities when using the mindmap app rather than to use a previous formative assessment of the same activity which used paper-based planning. The research plan then includes a change to teaching and assessment, as a new tool is introduced to an existing lesson plan. This minimises the additional effort which the inquiry will take on top of everyday teaching duties. She aims to identify the differences made by students when planning using the tool, as well as differences in achieving the objectives of the task. She decides to record these comparisons alongside her reflections in the TISL planning tool, and also maintains a research journal. She plans to design a short set of interview questions to further explore some of these reflections and to guide later discussions with her students. She provides an overview of her research to her students, and in line with her school policy, obtains written consent from those students involved in the project, as well as their parents, requesting permission to audio-record the planned interviews.

She also notes any confounding variables which may affect her study, and plans to minimise their impact. She had planned to include a preparatory lesson before mind-maps take place, using paper-based activities, though as this could attribute to students' development of planning skills (and not just the app) she decides not to.

Useful resources which offer advice on how to select whether quantitative, qualitative or mixed-methods research is most appropriate for your project include:

Bryman, A. (2012) Social Research Methods.OUP: Oxford.
Cresswell, J. (2013) Research Design: Qualitative, Quantitative and Mixed Methods Approaches. Sage: London.
Dawson, C. (2009) Practical Research Methods. How To Books: Oxford.
Hart, C. (2011) Thinking, doing, feeling: capabilities in relation to decision-making and transitions beyond school in the UK. In: 20111 Children's Capabilities and Human Development Conference. 11-12 April 2011, University of Cambridge

Additional information on research ethics guidelines can be found here:
BERA (2011) Ethical Guidelines for Educational Research. BERA: London.

Stage 4: Learning Outcome/ Feedback:

Data can be analysed once the learning activity is complete. Preparation for data analysis should be considered: for example, are time or resources needed to transcribe interviews in order to allow for emerging themes to be highlighted, or preparing records of assessments to enable statistical analyses of grade changes to be completed?

An appropriate and effective method of disseminating research findings should be sought. This can be dependent on initial motivations for engaging in inquiry, and whether these related to broader programmes of professional learning. For example, it may be that findings are directly communicated to management in the form of a report, or that a list of recommendations are implemented in the teacher-researcher's future practice. However, it may be that inquiry findings would also be useful to the teacher-researcher's colleagues, or that inquiry-based learning has formed part of broader school CPD strategy.

Consideration of impact is important when designing dissemination methods for research findings. It may

be that impact is demonstrated through providing a product, such as a support pack for implementing learning technologies; or through processes, for example, a change to the way teachers use iPads in the classroom across the school (Bubb, 2009b). Impact is defined as 'the difference in staff behaviours, skills and practice as a result of the professional development in which staff have engaged" (Earley & Porritt, 2009:8). When evaluating the impact of the completion of an inquiry, or of the dissemination and implementation of research findings, it is important to recognise 'where we are' and 'where we want to be' (Bubb, 2009b). Earley & Porritt (2009) describe Guskey's (2000) evaluation of CPD through learning outcomes for young people as being achieved at five potential levels:

- participants' reactions
- participants' learning
- organisation support and change
- participants' use of new knowledge and skills
- student learning outcomes

(Guskey, 2000 cited in Earley & Porritt, 2009:6).

For practitioners who are engaged in cycles of teacher inquiry as part of a whole-school strategy, evaluating the effectiveness of how findings are shared provides an important contribution to impact evaluation and evidence-based practice. Dissemination activities can take a variety of forms, including workshops, demonstrations, case study reports, newsletters and posters.

For example, the teacher then begins to analyse the data she has collected. She performs quantitative analysis of the grades which students attained using the mindmap tool, comparing these grades to those attained last year. Findings from this analysis are used to inform the interview structure which she uses with her students to draw out additional insights relating to their experiences and perceptions of the tool.

The interviews are audio recorded and transcribed. The teacher-researcher reads through the transcripts and begins highlighting emerging themes in relation to learners' experiences and perceptions of the app. She submits her findings in a one-page summary to the school leadership team, which focuses on the teaching and learning outcomes of the research, and also reports on her professional learning as a result of engaging in the inquiry. Each half-term, the school engages in teacher-training sessions, with opportunities for staff to communicate what they have learnt from conferences, or to receive training from external facilitators. She plans to present her teaching and learning outcomes to colleagues, providing them with a space to discuss how to apply her research findings in their own lesson plans. She also compiles her lesson plan and a one-page summary of findings into a resource pack to assist her colleagues with the use of apps in the classroom.

The final step in the TISL heart process is to return to the first step, and think about whether to carry on the cycle of inquiry, further refining pedagogical practice and encouraging deeper engagement in research studies.

About nextPractice

nextPractice is part of the Next-Tell Project. A key challenge in the 21st Century technology-rich school is how to keep track of students' learning across time, location, media, and networks. The Next-Tell project has developed a competence-oriented approach to capture and visualise students' learning in a holistic manner, bridging learning management systems, e-portfolios, and cloud applications and closing the gap between online learning and tablet-based learning activities. Students are offered a wide range of opportunities to practice complex skills, including 21 Century skills. Teachers can plan collaboratively for learning that cuts across the curriculum and analyse students' learning using advanced assessment and learning analytics approaches. Teachers, students and parents benefit from having managed access to always up-to-date, information-rich, school-wide data on learning and development. The Next-Tell project

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