Collaborative enquiry in educational settings: Questioning the evaluation and impact

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Abstract
Working collaboratively with others is thought to offer a worthy format for educational practitioners' professional learning and aspects of collaboration and enquiry can be seen across the British educational system for the past few decades. The educational context in Wales sets out support and encouragement for this; indeed, the Professional Teaching Standards, which were revised in 2015, have collaboration, enquiry and innovation as three of the five elements that standards are written against. Despite there being some collaborative enquiry practice for decades in the educational arena and an increasing amount of practice in this domain in the past decade, there are still gaps in the empirical knowledge base, particularly around evaluation and impact. This is particularly true for impact beyond the individual practitioner.

This literature review sets out to consider the current outcomes from empirical research around collaborative enquiry, particularly around evaluation and impact. In doing so, it will explore themes including the impact of collaborative enquiry on the individual practitioner and their practice and any impact on practitioners' settings. The recommendations from this literature review include consideration of leadership perspectives to outline the aims of collaborative enquiry within their setting and evaluations linked to those aims, that the achievement or progression towards those aims are considered over time and that evaluation is conducted with practitioners who are research informed about the aims of collaborative enquiry, able to consider its effectiveness relative to other forms of professional learning and have clarity about the measures of effectiveness.

Introduction
Collaboration amongst teachers has been part of the educational arena in the UK and Wales for decades. Educational policy developments in Wales have seen an iterative developmental approach to supporting, encouraging and, in cases, enabling collaborative working through a variety of different approaches from professional learning communities (Welsh Government, 2013), action research movements, the re-development of the teaching and leadership standards to include a dimension for research as well as school and higher education partnership within initial teacher education.

England has taken the route of formalising collaboration through multi academy trusts and federations while Wales maintains its position as favouring discrete educational providers. There are however signs of movement towards some more formalised collaborative

structures in the education sector in Wales. The most notable of these was the formation of the four regional consortia in 2012 as a set of structures for local authorities to work together. While the way in which these organisations set themselves up and the way in which they operated varied and still varies significantly, it is difficult not to see the intentionality of this being around efficiency, efficacy and effectiveness through a shared resources approach. At a different tier in the system, Wales has not followed England and moved significantly in the direction of federated schools, although there are a small number, but it has increased the number of all age schools from less than five to over thirty in a fifteen year period, with nearly all of these having one leadership team. Executive headship is also becoming increasingly prevalent. These examples demonstrate an encouragement of within tier collaboration in the system.

There are also several orchestrations of across tier collaboration. The developed Curriculum for Wales, following the publication of Successful Futures (Donaldson, 2015), has been loudly proclaimed as a curriculum for practitioners written by practitioners. However, this overlooks the very significant input, steer and validation of practitioner outcomes by a panel of 'experts' and civil servant leadership of construction and design groups. Hardly surprising if one considers that the practitioners were drawn from the system in 2015, at a point in time where research and enquiry, under any guise, was not particularly prevalent and not well understood by the majority. The output of this collaboration is a new curriculum. Overall, this work is yet to be evaluated however, when that comes, hopefully process, output and evaluation and impact will be considered.

The National Professional Enquiry Project (NPEP), launched in 2018 by the Welsh Government provides a second example. This follows on from previous initiatives including professional learning communities (Welsh Government, 2013) but, perhaps as a point of difference, sees different tiers financially enabled to work together; practitioners, regional consortia working alongside higher education institutions. Evans et al (2022) suggest that the inspiration to renew the focus on practitioner professional learning was due to a lack of progress in PISA outcomes between testing in 2012 and 2015 and a recommendation by the Organisation for Economic Cooperation and Development (OECD, 2020) to build a learning culture by strengthening both links between schools and universities utilising enquiry. Participants undertake enquiry in their own context but record in an agreed template, as part of the network protocols. The outputs of this project can be considered those generated by participants' research however, again, the impact of this project has not yet been evaluated.

While the articles relating to empirical research in this area are relatively small in number, the grey literature pertaining to this is available in abundance. This is to be expected given it is a public service area however these evaluations often take a business approach to assessing 'value for money'. These reviews are supplemented by published literature, often

‘thinkpieces’ by those who have acted in an advisory capacity to different government agencies/organisations. The research articles that are available do however generally present compelling evidence to support a continued approach of collaboration for teachers working together in schools. Phillipa Cordingley, a several times published author in this field, states that the findings are “surprisingly consistent and coherent” (2015: p236). Benefits include improvements in attainment, attitudes to learning access to greater strategies for learning and the benefits for teachers include better subject knowledge and improved confidence. These types of outcomes are supported by several voices, for example, OECD (2014) concluded that collaboration tends towards more positive outcomes for student achievement. In addition, the very high academic outcomes seen in PISA studies for Japan are attributed to the problem-solving collaborative enquiry approach together with a view that a classroom approach is likely to be more productive than a school approach is deemed to bring about these high outcomes (Reynolds and Neeleman, 2021).

Information around the evaluation and measurement of impact of professional collaboration remains less well developed than the description of what happens in these collaborations (Cordingley, 2016). There is even less available empirical evidence to support collaborative enquiry as a means for wider improvement at any level in the education system. Claims exist within the literature; for example, Arkhipenka et al (2018) identify that when collaborative enquiry is extended to inter school collaboration, the benefits gained have potential to increase but they do not evidence this. While there is an indicative set of factors at practitioner level that are markers of effectiveness, it is less clear whether these are deemed to have the same influence at a wider system level. It is also less clear whether the enquiry of individual practitioners or groups of practitioners has an impact wider than on the individual. These points generate an important set of questions for exploration given that collaborative enquiry is becoming increasingly prevalent in the Welsh education system. Is collaborative enquiry going to ‘make a difference’?

This review, therefore, has been designed to address the following questions:

1. What is the definition of collaborative enquiry?

2. What factors influence the effectiveness of collaborative enquiry?

3. What is the impact of collaborative enquiry?

Methodology and search strategy

The aim of this assignment is to produce a narrative literature review that provides a level of critique of the research-based literature, highlighting the similarities and differences in methodologies that researchers have taken to identify any gaps in knowledge. Therefore, in approaching the available literature, it has been important to be open to those that utilise

varying approaches so that there is greater depth to the holistic knowledge that can be synthesised by this literature review. The key steps that have been used have been:

- An initial search of the literature with a goal of mapping diversity and perspectives
- Citation tracking and view of author credibility view
- Searching for empirical papers electronically using databases and 'snowballing'
- An appraisal to evaluate the relevance of each paper to the review questions and the quality that the information presents
- A synthesis to identify the most important themes coming out of the research
- A discussion and recommendations phase

Google Scholar and university databases were used to identify possible articles for inclusion in the literature review. The terms used to conduct the search were taken from engagement with wider reading, including grey literature, and other meta literature analyses in this area. The search needed to be narrowed to highlight journal articles that were more relevant to both the research question and the educational/school context and so these terms were used in combination "+collaboration" "+collab" "+collab enquiry" "+educat impact". To give an indication of the search outputs, the results are presented in table 1.

Table 1: Search terms and outputs

Key terms	**Number of search findings**	**Number of journal articles**	**Number in scope (publication year)**
+"Collaborative enquiry"	1402	1161	661
+"Collaborative enquiry" +"school"	616	520	309
+"Collaborative enquiry" +"School" +"impact"	100	91	68
+"Collaborative enquiry" +"School" +"evaluation"	77	69	44
+"collab* enquiry" +"school" +"impact"	1	0	0
+"collab* enquiry" +"school" +"evaluation"	2	0	0
+"Collaborative inquiry"	1585	1170	666
+"Collaborative inquiry" "school"	526	515	314
+"Collaborative inquiry" +"School"	114	90	67

+"impact"			
+"collab* inquiry" +"school" +"impact"	26	0	0
+"collab* inquiry" +"school" +"evaluation"	20	0	0

References from highly cited papers in the field were accessed and considered. Examples of these include Butler and Schnellert (2012) which had been cited around 500 times; however, this article fell outside the criteria of being published within the last ten years.

To determine whether a journal article would be included in this literature review, it was assessed in terms of its relevance to the research question and the value that it added to the holistic view of the data around collaborative enquiry. The credibility of all papers, in terms of the numbers of citations, is variable and perhaps towards the lower end in some cases however the value of the knowledge that they add to this field is high.

Given that this is an area that sits within wide scale public service, many of the evaluations of collaborative enquiry sit within commissioned work or inspectorates. A good example of this would be 'Independent review of teachers' professional development in schools: phase 1 findings' (Ofsted, 2023). These evaluative reports sit outside the categorisation of journal articles as stipulated in the scoping of this assignment and, while the knowledge, recommendations and questions that they raise can and will support the critique of the literature, they cannot be included as literature pieces themselves.

The review of articles exemplified that the dominant ontological approach in this area is one of subjectivism and so presented researchers' epistemological stance of interpretivism, therefore exemplifying that nearly all researchers (seven out of ten: see table 2) selected consider that reality is subjective and that we can only understand someone's reality through their experience of that reality (Scott, 2017). Through using qualitative approaches to their explorations, the assumption is that they will be able to gain a rich and deep understanding of an area although often with a smaller number of participants. Two of the studies utilise a pragmatic approach, taking both positivist and interpretivist approaches in their use of both qualitative and quantitative methodologies and only one has taken a fully objective stance of positivism, therefore research was constructed on the basis that knowledge is revealed from a neutral position and the observation of activity, action and reaction and that, if something cannot be measured, it is of little value (Scott, 2017). Only one researcher utilised a fully quantitative methodology using surveys and subsequent analysis. In doing so, they obtained the largest sample of all papers used (n = 700 (Brown and Zhang, 2017)).

The selected articles therefore have a dominance of teleological ethics as they are interpretive studies whereby, acting for the 'common good', the aim is to construct a holistic understanding of the research question by taking a focused account of how individuals support or challenge it and each other. Typically, a description of teleological ethics includes the term, 'diverse group' (Farrimond, 2017), however it is difficult to ascertain whether this has been the case from the samples in the studies selected from the information given around sampling.

Of the eight papers, only three included mention the actions that they had undertaken to gain consent from participants (Butler, Schnellert and MacNeill, 2014; DeLuca et al, 2017). Arkhipenka et al (2022), for example, makes mention that the participants as active enquirers would be in an informed position to give consent due to their understanding of the process. Evans et al (2022) also briefed employers with an outline of the research so that they, in addition to the participants, could consider possible consequences for their organisation. The remaining five made no mention or there were a small number of areas where the reader could possibly attribute an implicit reference to ethics within a sentence or section. What can, however, be seen in nearly all of the papers is that the research design in terms of methodology, research methods and procedures outline generally a clear set of processes that have been followed to yield outcomes that supports the question posed by the research. In conducting research as such, the authors of these papers show that they are acting in a way to enhance the quality of outcomes and also the integrity of the empirical research. While consent is not explicitly mentioned, it can be seen across all included research papers that the procedures of the research methods are designed to maximise good outcomes and also minimise any harm to participants, therefore showing beneficence, respect and justice (Beauchamp and Childress, 2013).

Table 2: Summary of research approaches from selected articles

Authors	Publication and citations	Title	Ontology	Epistemology	Method	Methodology	Ethics	Limitations	Other notes
Arkhipenka, Volha; Dawson, Susan; Fitriyah, Siti; Goldrick, Susan; Howes, Andrew; Palacios, Nahielly.	2018 Educational research Cited by 11 Peer reviewed	Practice and performance: changing perspectives of teachers through collaborative enquiry	Pragmatism		Inductive Deductive	Mixed methods Q sort Reflective discussions Ethnographic case studies	University ethics approval Participant consent Setting briefed	Insider bias Small sample	Over a period of almost a year Sampling unclear Good replicability Context well defined
Brown, Chris; Zhang, Zell.	2017 Educational management administration and leadership Cited by 73	How can school leaders establish evidence-informed schools: An analysis of the effectiveness of potential school policy levers	Objectivism	Positivism	Inductive	Quantitative Survey	Not mentioned		
Butler, Deborah; Schnellert, Leyton; MacNeil, Kimberley.	2014 Journal of educational change 144 citations Peer reviewed	Collaborative inquiry and distributed agency in educational change: A case study of a multi-level community of inquiry	Subjective	Interpretivism	Inductive	Qualitative Semi structured interviews Observations Documentary analysis e analysis.	Noted in brackets that 14 of 18 teachers gave consent to participate.		
Carpenter, Daniel.	2017 International journal of educational management Cited by 80	Collaborative inquiry and the shared workspace of professional learning communities	Subjective	Interpretivism	Inductive	Qualitative Semi structured interviews Observations Documentary analysis	Not mentioned		Validity and trustworthiness of data considered by utilising several methods over a prolonged period of time. Transferability considered - rich

	Peer reviewed								description of the context
Cherkowski, Sabre; Schnellert, Leyton.	2017 Teacher development: An international journal of teachers' professional development Cited by 25 Peer reviewed	Teacher, team, and school change through reciprocal learning	Subjective	Interpretivism	Inductive	Qualitative Case study Semi structured interviews Observations Documentary analysis	Not mentioned	One setting Small sample (n<20) Possible insider bias but not acknowledged	
DeLuca, Christopher; Bolden, Benjamin; Chan, Jessica.	2017 Teaching and teacher education Cited by 107 Peer reviewed	Systemic professional learning through collaborative enquiry: Examining teachers' perspectives	Pragmatism		Abductive	Survey Focus groups	Clearance obtained from university board, participating school districts and participants.	Lack of direct observations of collaborative enquiry practice Calculates a mean from ordinal data	Difficulties noted in level of facilitation. Ethical consideration given to responsibility as facilitators and researchers when key gaps are evident.
Evans, Gareth; Llewellyn, Sally; Lewabe, Jai.	2022 PRACTICE: Contemporary issues in practitioner education Peer reviewed	Towards a research-engaged teaching profession: insider reflections on a collaborative approach to developing teachers in Wales as professional enquirers	Subjective	Interpretivism	Inductive	Qualitative Ethnographic case studies	Authors required to confirm their 'process consent'. Also notified participants/authors and employing organisations of the potential risks.	Small sample Possible insider bias acknowledged Recognised limitations due to scale	Context well defined Acknowledges close association with the project discussed and potential biases. Intended as early stage reflections rather than an evaluation. Insider research.
Harris, Alma; Jones, Michelle Suzette Both well known and well respected authors in this field	2017 Journal of professional capital and community 26 citations	Disciplined collaboration and inquiry: evaluating the impact of professional learning	Subjective	Interpretivism	Inductive	Qualitative Semi structured interviews Observations	Not mentioned	Indicative rather than representative sample Using data collected for	

and advisers to Welsh Government at points. Many publications.	Peer reviewed							formative use summatively	

1. What is collaborative enquiry?

It is important to start here with a definition of 'collaborative enquiry' as the potential variations identified in the introduction and initial scan of the literature use a variety of different terms to label the same or very similar things. Collaborative enquiry can be and is used as a term to describe a pair or group of people working together to address a question and therefore can become an 'umbrella' for a variety of different formats including, but not limited to, peer enquiry, professional learning communities, collaborative professionalism. The collaboration can exist within and/or across networks and tiers of the education system. Within the Welsh education system, different terms have been used over time. For example, what is known as collaborative enquiry today would, in Wales, be considered the activity of a professional learning community in 2013 (Welsh Government, 2013).

Carpenter (2017) draws on a definition of collaborative enquiry as being when educators share common outcomes based on pupil performance and teaching and learning methodology. Similarly, Butler, Schnellert and MacNeil (2014) utilise a classroom level definition where the outcomes of collaborative enquiry are potential changes to teacher practice. They utilise a process of practitioners identifying targets, planning and implementing practices and monitoring the effectiveness of their actions and iteratively moving towards the achievement of their targets. DeLuca et al (2017) define collaborative enquiry as practitioners jointly enquiring into a shared problem of practice.

As a contrasting perspective, Harris and Jones (2017) found in their review of 'disciplined collaboration' in 8 schools in Australia, that collaboration teams became problem seekers not problem solvers which lends support for one of the findings coming from Arkhipenka (2018) that those that perceived research focus as being the most dominant factor for them in collaborative enquiry often changed their perspective during the process from trying to understand the problem rather than just trying to solve it. In their qualitative, ethnographic study with two schools they found that, in one school, practitioners paused when they found that their actions had partially 'solved' the problem; however, instead of working towards an increased understanding of the problem, they resolved to start again with new alternative solutions. Contrastingly, in the second case study school, they found that practitioners moved away from a problem-solving approach and made more efforts to understand the problem. While the findings here come from observations from a small sample of schools in a case study approach the data can be considered rich and it gives helpful insights into the negative impact that some factors can have on enquiry as a process in the pursuit of 'solving the problem' if we consider that to be the definition. Arkhipenka et al (2018) suggested that this was the impact of 'performativity' in the culture, either just within groups, schools or the wider system and therefore speculated that the pursuit of getting to a particular outcome as quickly as possible was perceived to be the aim and/or the need in this set of practitioners.

The difficulty, therefore, with defining collaborative enquiry is that there are multiple definitions available but also the purpose of collaborative enquiry is unclear in too many of the selected papers due to a lack of detail around the context, particularly at leadership level. To understand the findings from the papers considered and to accurately evaluate the impact of collaborative enquiry, it is important to know what the aims were in introducing/continuing it, how different/similar it was to previous mechanisms.

Utilising a practitioner or classroom level definition could possibly constrain the findings of this literature review and so, for the purpose of this literature review, collaborative enquiry will be taken to mean a pair/group of professionals engaging with each other over a period of time to consider a question. In terms of process, 'plan, do and review' provides a broad base in which to encapsulate the empirical findings of the research available in this field.

2. What do we know about factors that influence the effectiveness of collaborative enquiry?

Enquiry skills development

Practitioners need to have a foundation of basic research and enquiry skills before conducting enquiries (Evans et al, 2022) and practitioners' perceived view of effective collaborative enquiry includes a differentiated approach to supporting the enquiry process with both individuals and groups (Cherkowski and Schnellert, 2018). However, this latter finding came from a subjective exploration of a small school. It is however supported by findings from DeLuca et al's much larger, pragmatically approached mixed methods study of almost 300 practitioners. One of the findings in this study was that one of the most inhibiting factors of the effectiveness of collaborative enquiry was practitioners not being able to make sense of the data that they had gathered. Interestingly though, in this study, practitioners did not perceive that 'ability to assess the impact of our enquiry' was at all inhibiting. Practitioners were also likely to positively evaluate the outcomes of collaborative enquiry even when the planned action was not successful (Arkhipenka et al, 2018). These findings pose a challenge for the evaluation of impact of collaborative enquiry, both in terms of practitioners evaluating the outcomes of their own collaborative enquiry and for researchers who are using practitioners' voices through the use of interviews, which is concerning as this is the dominant method used by the studies that I have selected here and, in this respect, they are relatively representative of this field in terms of the choices that they have made about their research design.

For collaborative enquiry to be most effective, evaluative measures and processes need to be defined from the outset (Harris and Jones, 2017). Working with an indicative rather than representative sample of schools already participating in a project they found, using inductive processes to analysing data, that starting from student attainment data and

setting points for reviewing student attainment data supported the effectiveness of the collaborative enquiries as practitioners were clear about how they were evaluating the impact of their work and also that it was being evaluated thus giving it purpose. One of the noted outcomes from this study is that it afforded more time for practitioners to actually engage with the collaboration. There can however sometimes be overuse of data or overuse of one type of data which can mean that other approaches are possibly underused. For example, Carpenter (2017) found that group members not examining available literature meant that the strategies agreed were not supported by evidence and also that almost all innovation-based practices were an adapted version of an existing practice in the school. Overall, there is a recommendation here for the continuing development of enquiry skills, particularly those that sit around qualifying outcomes and evaluation linked to purpose.

Professional autonomy and empowerment

It is important to be mindful that there is a possibility of tension where evaluation measures are imposed by leadership (Arkhipenka, 2018); however if the school aim is to build practitioners' skills in identifying actions that may potentially have an impact or gathering data, then perhaps this matters less at a given point in time. If the move towards a collaborative enquiry system is to focus on developing practitioners' evaluations perhaps this would be an appropriate area of proportionate focus. Without knowing the contexts and the leadership vision, it is difficult to evaluate this point. Clarity of definition and leadership aims is essential.

Carpenter (2017) found that 'positive functioning' PLCs were those that were led by practitioners rather than a more 'top down' approach. Butler, Schnellert and MacNeil (2014) also found from their qualitative case study of one school that if practitioners perceived direction to be 'top down' it resulted in decreasing engagement. Coming through clearly from three participants' narrative reflections in Evans et al's (2022) ethnographic study, is that, across three tiers of the system (practitioner, consortium and researcher) there is a consensus that enquiry should be led by practitioners. While cross tier working created some confusion about 'who did what' this was largely fed by practitioners' expectations/perceptions rather than created in the design of the enquiry group roles. The perception of the role and function of the 'top' is clearly important here however the 'top' in all studies was referred to as school leadership rather than any wider leadership or context.

Leadership, structure and resources

Brown and Zhang's (2017) less common objective ontological approach to their research in this area found, from their quantitative survey of almost 700 practitioners, that the most important features for improving 'practice' were strategies, conversations and encouragement by leaders; essentially, clearly set up models and reiterated and reinforced facilitation. Delving deeper into this using interviews, Cherkowsi and Schnellert (2017) found

that well designed models helped to manage and reduce the risk of conflict as they gave clarity on the terms of engagement and supported the group to navigate the enquiry process. Also emerging from their analysis of interview transcripts was the importance of the role of the school leaders; how important it is for their intentions to be shown by acting to demonstrate their value of the process. Practitioners' buy in has been identified by DeLuca et al (2017) as an influencing factor in the effectiveness of collaborative enquiry and state that for this to occur, practitioners need assurances about sufficiency of support which include, but are not limited to, time, facilitation, enquiry skills support and a supporting culture of collaboration in the school.

Money creates the capacity for practitioners to have time and, without it, there would have been no guarantee that practitioners would or could have the time to engage with their enquiries (Evans et al, 2022). While steeped as a discussion from an outcome of a very small ethnographic study, Gareth Evans is a notable researcher and commentator in this field. He draws on a particular comment from one participant about enquirers never being 'completely free' to develop their own work as unsettling and holds the 'top down' standardised reporting and predetermined timetable accountable for this. Further support for this comes from 'release time to collaborate with peers' having a mean rating of 3.4, with 4 being defined as 'extremely helpful' (DeLuca et al, 2017). It should be noted here that this is a mean incorrectly gained from ordinal data however it does give perhaps an indication of practitioners' responses.

Most of the points made above in relation to leadership are those around functionality. While logistical details are perceived as important enabling factors by practitioners it is perhaps not an exploration of the leaders' intentions of collaborative enquiry and this again draws attention to a gap around purpose, aims and intentions linked to evaluation and impact.

Stakeholder coherence and contextual factors

All studies reference external context variables as a suggestion of stakeholder coherence and possibly necessary or enabling context for schools to be operating on a basis of collaborative enquiry. The research of Brown and Zhang (2017), Arkhipenka et al (2018) and Butler, Schnellert and MacNeil (2014) all takes place in England where significant structural changes have been made to encourage and motivate collaborative working. Canada, where collaborative enquiry has been driven by the Ministry of Education for over a decade, is home to DeLuca et al (2017) and Cherkowski and Schnellert (2017). It is a similar educational policy context in Australia where Harris et al (2017) explored these eight schools' practices. She however lives in Wales, as does Evans et al (2022), where collaboration has been experiencing growth in the educational political context. There is less information about the local, regional or national context of the work of Carpenter (2015) however it is based in Texas and states that collaboration is part of the school culture. All of these studies make an

implicit assumption that the contextual factors are considered positive or enabling however none of these studies explore practitioner perception of this.

What is the impact of collaborative enquiry?

Frameworks

DeLuca et al (2017) utilise the Ontario Literacy and Numeracy Secretariat (OLNS, 2010) framework of collaborative enquiry as the links between that and their definition as joint problem solving are clear. In doing so, they found evidence to support that practitioners value the 'relevant', 'reflective' and 'collaborative' aspects that the framework uses for this approach however they did not have sufficient evidence to be able to evaluate the remaining aspects of 'discuss', 'iterative', 'reasoned', 'adaptive' and 'reciprocal'. Brown and Zhang (2017) in aiming to construct a predictive model for the effectiveness of collaborative enquiry put forward four 'effect variables': 'support'; 'practice'; 'approaches'; and, 'discussion'. These two frameworks were published prior to the more recent framework of the ten tenets of collaborative professionalism (Hargreaves & O'Connor, 2018), which sets out a framework of 'solidity' and 'solidarity' that is now being used by other well-known researchers in this field as an evaluation framework, for example, Hollweck and Lofthouse, (2021). There does not seem to be a consensus as to which framework provides the better evaluation stance which mirrors the lack of consensus around definition of both collaborative enquiry in terms of intentions, process and outcomes.

Perception of benefit to self and as good professional learning

DeLuca et al (2017) found that practitioners were positive about the development of their approaches, a learning community and opportunities to demonstrate their own leadership skills. Arkhipenka et al's (2018) study supports this with the outcomes of the Q sort element of their mixed methods study into practitioners' perceptions of collaborative enquiry. This categorised the practitioners into one of four groups. Over half of the participants categorised as either a 'practice', or 'collaboration' focus which broadly meant that they valued either the process of asking and answering questions about their practice or having the opportunity to work with others as useful.

Cherkowski and Schnellert (2018) sit alongside most other authors referenced in this paper (see table 2) in taking a subjective ontological stance, working on the assumption that knowledge is situated in others' lived experiences (Scott, 2017) and therefore use an inductive approach to research where they have used a qualitative method and collected information using a case study methodology and semi structured interviews with a small sample. They found that enquiry learning was a factor in practitioners developing a sense of agency about change. This is an emerging theme from papers and, for example, is supported by Carpenter (2017) who found that the feeling of shared leadership within collaborative groups resulted in more contributions and greater outputs of teaching and learning

innovation. From analysing over forty transcripts from repeated semi structured interviews, 90% of practitioners described gains in their own efficacy and, more specifically, over half described gains in terms of their perception of their own competence, confidence and/or control regardless of whether the actions had been successful. This is deemed to be an important outcome as it is speculated that the developing sense of control amongst practitioners developed an optimistic stance about potential impact in further cycles of collaborative enquiry; however, whether practitioners continued to value the process was influenced by the level of agency and purpose felt by practitioners within their enquiry (Butler, Schnellert and MacNeil, 2014).

There are variations in the positivity of the outcomes of collaborative enquiry as valuable professional learning however these do not necessarily come through the discussions as key findings. Some of the researchers acknowledge that there had been a level of diversity of experiences termed as 'outsider' focus (Arkhipenka et al, 2018), or the unwillingness of some practitioners (DeLuca et al, 2017) aligning with Gareth Evans' view (2022) that collaboration is attitudinal and the individual themself can be a constraining factor.

Impact on practitioner practice and student learning

Carpenter (2015) found that, while practitioner actions were not grounded in evidence-based research, they could be considered innovative relative to the setting and deemed to often meet the needs of students for their learning and goes further in stating that a continuously effective collaborative environment will lead to improvement by enabling practitioners. Cherkowski and Schnellert (2017) agree that agency can be considered by some as a 'marker' for the development of professional learning which, in turn, can lead to improved experiences and outcomes for students. The difficulty here with both of these conclusions is that there is a presumption that practitioners apply their 'new learning' and this change in practice is a precursor of a change of student learning and outcomes; however, this notion is challenged by both Harris et al (2017) and Brown and Zhang (2017), the latter determining that a school culture of research use was the lever for this behaviour.

Not all studies are in agreement about the consensus in findings and Cherkowski and Schnellert (2017) found limited change to teacher practice and no evidence to suggest any impact on student learning has been a finding. This is from a very small study however the effect of collaborative enquiry on student outcomes is difficult to pinpoint for a number of reasons (Harris et al, 2017). Firstly, practitioners do not always apply their colaborative enquiry learning to their practice; discrepancies between perception and practice are evident (Brown and Zhang, 2017). Secondly, not all collaborative enquiry is positive. There are individuals and groups that do not exemplify the characteristics drawn out by research as having a positive impact on effectiveness and therefore these practitioners do not necessarily see the same outcomes (Evans et al, 2022; Arkhipenka et al, 2018; Harris et al, 2022). Thirdly, that the learning that takes place for individual practitioners is not

necessarily routinely cascaded to others, so we do not have the mechanisms in places to gain knowledge about their learning to support evaluation. Finally, research and evaluations perhaps look to signal that the methodology of collaborative enquiry is deemed effective based on evaluation at practitioner level rather than student level and therefore there is an inability to draw this conclusion about student outcomes. Indeed, DeLuca et al (2017) highlight this last point and recommend that this is taken forward in future research. There is a question here for researchers around the measure of impact. In most of the studies used here, this was guided by the practitioners with researchers taking an interpretivist approach, analysing and synthesising for meaning. In the smaller number of studies utilising an objective or pragmatic approach utilised in this review, statements of impact were pre-written based on evidence from literature and earlier ethnographic observations; none of these statements included content around pupil learning as an indicator of impact (Brown and Zhang, 2017; Arkhipenka et al, 2022).

Brown and Zhang (2017) present an unique position within the selected authors for this literature review in that they are the sole researchers to take an objective ontological stance, subscribe to inductive epistemology and solely use a quantitative surveying methodology. In doing so, they yield the largest sample from the selected articles at almost 700. A key outcome of this research suggests that the difference observed in the data analysis between beliefs and practice is not due to practitioners struggling to implement the research and is instead evident because school level cultural norms did not yet include research use. In aiming to build a predictability model of practitioners' routinely using evidence-based practices, this was deemed to be the key aspect to change to increase this behaviour. This raises important questions about the position of collaborative enquiry within culture and what the position needs to be for it to be a mechanism for securing improvements. Is collaborative enquiry the mechanism for shifting the culture? Or does it need to sit within a context where collaboration is prevalent in a school? In a local authority? Or more widely? And, can the improvements be seen at the individual practitioner level? Group level? School level? More widely?

System level change within schools

Schools felt benefits of collaborative enquiry being curriculum alignment across a wider span, that professional learning was more specific to individual practitioners' needs and whole school shifts towards a more collaborative culture from enquiry work (Carpenter, 2015). DeLucas et al's (2018) practitioners described a 'workplace shift'. Cherkowski and Schnellert (2017) found a cultural change within school towards working together in collaborative enquiry. However, in Arkhipenka et al's (2017) study, only 2 of the 16 participants were categorised as being 'research' focused and therefore valuing the process of enquiry and seeing it as contributing to whole school development. This finding comes from interviews of sixteen practitioners. It is therefore a small study however the finding was formed from data gathered from an ethnographic approach, Q sort and interviews and

presents an interesting view. However, the finding of culture of collaboration is also challenged by the finding that only half of practitioners considered the value of research before making decisions for whole school change (Brown and Zhang, 2017).

Wider system level change

Very few practitioners linked their gains to system or context level developments instead consistently focusing on how their engagement with collaborative enquiry was impacting on student learning (Butler, Schnellert and MacNeil, 2014). However, across most studies there was little opportunity for them to do so with research focusing on other aspects of collaborative enquiry. Butler, Schnellert and MacNeil (2014) are one of two sets of authors selected in this review that consider collaboration beyond the school walls. Utilising a model from their earlier research (2012), they acknowledge the potential reciprocated impact of the context on collaboration and conversely collaboration on context. In this model, collaboration takes place within 'layers of context' which create enabling or disabling conditions. Layers include social and political context as well as the operating factors set out at school, local, regional and national level. By utilising this model, they were able to consider how the context impacted the individual practitioner. They conclude that the 'greatest enabling condition' was the situation of collaborative enquiry within a context where school leaders, district leaders, governments were committed to listening to practitioners, distributing leadership and agency.

Discussion

Many of the studies state a level of optimism in their samples due to the way that they have been selected. In the first instance, all of the researchers and settings involved in these studies have or were at the time of study engaging in collaborative enquiry which largely suggests that their school culture is one where collaborative enquiry, in some guise, is valued. For example, Evans et al (2022) conclude their paper with a clear position that their engagement with the research subject is likely to have generated a more optimistic stance and that the ethnographic pieces are contributions to an early reflection rather than an evaluation per se. Insider relationships are noted as possible limitations by Evans et al (2022), Arkhipenka, 2017). Questioning potential bias as part of the acknowledged limitations shows good reflexivity on behalf of the researchers however it still has a possible impact on the confirmability of the studies as discussed in relation to practitioner positivity about outcomes and impact of collaborative enquiry and whether practitioners can produce a suitable evaluation for two reasons. Firstly, are they able to evaluate well the impact of their own/group's enquiry and therefore make a suggested conclusion about the impact of collaborative enquiry as a methodology? Secondly, are they aware of the aims and potential outcomes of collaborative enquiry generally? Are they research aware in this respect? Are they aware of different models and outcomes? Are they able to evaluate this model relatively, perhaps having been in more than one environment utilising collaboration? Also in here, whether they are able to evaluate in line with the aims of their setting?

In addition to points made throughout the synthesis of findings, it is essential to note that there is a noticeable gap in the research that aligns with 'Covid times'. There will have been inherent difficulties with researchers entering and engaging with practitioners over perhaps a two year period and it is also likely that schools have taken a little while to re-establish themselves in terms of their professional learning structures. This does however raise a question about what of their collaborative learning structures have been kept, if kept how do they look now and whether the focus of these mechanisms for learning have changed.

Conclusion

Given the points made throughout the body of the literature, this review concludes with the following recommendations for further research to reduce the 'gaps' in the empirical research around the evaluation and impact of collaborative enquiry:

- That we seek to establish an evaluation of the impact of collaborative enquiry with practitioners that:
    - Are evidence informed about effective processes of collaborative enquiry
    - Are clear about the measures of perceived effectiveness or success
    - Are given the opportunity to also evaluate other methodologies/formats of professional learning

- That we seek to establish the aims of school leaders in establishing collaborative enquiry and therefore better understand the means by which the outcomes and potential impact can be evaluated.

- That researched variables are considered over time so that there can be an improved insight into the phases of development within collaborative enquiry.

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