

DEVELOPING COLLABORATIVE APPROACHES: A SECONDARY MATHEMATICS REGIONAL PARTNERSHIP, SPANNING PRE-ITE AND WITHIN-ITE PROVISION.

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A significant and sustained level of collaboration has developed across three neighbouring universities spanning secondary mathematics pre-ITE and within-ITE course provision. Given the usually competitive framework within which such universities operate, this is an interesting socio-cultural phenomenon. Therefore the ways in which the collaboration has developed are explored by the author-participants, including analyses of inhibiting and enabling factors, and these draw upon documentary evidence provided by four key professionals who have been observers of the process. The central research questions addressed are about the viability of such a collaboration, and its nature and evolution to date. Strong inhibiting factors exist as a barrier to initial collaboration, but once breached diminish, and equally powerful enabling / sustaining factors come into play. Sustainability remains an open question.

RATIONALE AND RESEARCH QUESTIONS

This is an initial report on a socio-cultural study of teacher education and mutual professional development, in a teacher-knowledge and teacher-training milieu. The study is empirical, and this paper is presented as a case study in the development of collaborative practice between colleagues who are working within neighbouring, historically-competitive higher education institutions.

The focus of this paper is to address our central research questions: *to what extent is it possible to develop a collaborative educational culture within ITE secondary mathematics provision, against a background culture that is built upon economic competition between our universities and why and how has our collaboration developed to date?* Sub-questions will also be addressed within this focus, and these are: *What inhibiting factors to such a collaboration can we identify?* and *What enabling factors to sustain such a collaboration can we identify?*

The paper outlines the key factors and processes that the authors have identified within the joint development of a creative partnership culture spanning three south coast universities. This partnership has its origins and has developed in the context of the bidding, designing and teaching of a six-month intensive pre-ITE mathematics enhancement course. It has continued with collaborative developments within neighbouring PGCE Secondary Mathematics ITE routes. It is currently focused around an initiative wherein partners each contribute half-day specific teaching sessions to their own and each others' ITE routes, thus enabling the pooling of complementary expertise, both enhancing all three training routes and contributing significantly to the mutual continuing professional development of all three partners.

Indeed, the *BSRLM* conference session preceding this paper, this paper, and the preparation for both of these, are themselves a part of the process of extending and deepening the creative nexus.

PREVIOUS PAPERS ON ISSUES OF COLLABORATION

The majority of research papers and projects on collaboration relate in only a general way to this project. They deal mainly with collaborations between colleagues within departments on research (e.g. Austin & Baldwin, 1992) or with means of encouraging or evaluating collaborative work (e.g. Stahl, 1994, Ngeow, 1998). Studies often draw upon small-group theory and attempt to define collaboration (e.g. Foote, 1997). Some studies analyse how institutions could bring about collaborations to their mutual benefit, or what factors influence the development and sustainability of innovative practices (e.g. Curry, 1992). An effective analysis of factors relating to collaborations is provided by Stump & Hagie (under review) while Pugach & Johnson (2002) provide insights into collaborative practice. The two most relevant studies proved to be those of Rickards & Cochrane (2001) who describe a collaboration between two universities within a competitive environment, and Jones (2002) who considers collaboration critically, in the light of ‘restrictive practices’.

A FRAMEWORK FOR COLLABORATION

The context in which the collaboration arose is the advent of the TTA’s piloting of Mathematics Enhancement Courses [MEC], but, in analysing the readiness of the participants to collaborate initially within this project, it is important to recognise that certain pre-cursors were already established.

Our Stories: reasons to collaborate positively

These were discussed during the project development, distinguishing personal and professional reasons. Some professional reasons were held in common – MEC was a creative new enterprise, high profile, yet with scope for creative design and development. All originate from a secondary mathematics teaching background within which collaboration was once common. This in part led to us all warming to the prospect of working together – but this was also based upon a high level of pre-established mutual respect. The initial nexus was strengthened further at our first MEC meeting – when we worked closely together to give shape to our overall design and so submit a bid to the TTA.

A shared purpose (or having common goals) is identified by several researchers as a positive factor in developing collaboration, for example: “Sustainable collaborative efforts involve stakeholders who share a commitment to common goals and who work co-operatively as equal partners.” (Stump & Wilson, 1996). “Small-group theory... emphasises the temporary and emergent nature of collaboration as participants work out the details of executing a shared project or activity...” (Austin & Baldwin, 1992)

Reasons to collaborate were distinctive. *For example*, [C] had earlier worked with a mathematics adviser who actively promoted ‘sharing good practice’ across her region. Heads of secondary mathematics departments were encouraged to meet regularly, in twilight sessions, to share resources, create new resources, and discuss departmental and classroom practices; time was spent discussing and actually ‘doing’ mathematics within these meetings. On joining an HEI as a teacher fellow, [C] was surprised and disappointed to find no expectation or encouragement to engage in any form of external collaboration. [C] settled for working closely with [A] within the same institution. Only when [C] moved to a neighbouring university did cross-HEI collaboration between them become a possibility. Shortly after, [M] joined an HEI for the first time, and approached [C] for peer support and discussion of PGCE secondary mathematics course structure and materials. Meanwhile, [C] and [A], having worked together closely previously, decided actively to look for ways to “swap” sessions within their parallel ITE provisions, but funding became an issue, and justifying the time and expense of such collaboration internally was another.

When MEC arrived as a possibility, and then a reality, after a successful team bid, it was both a boon to existing efforts to collaborate, and also provided a vehicle to enable it to happen. All agreed that true collaboration was desirable within MEC. The rejected alternative was an ‘affiliation’ model, where one HEI ran MEC, while others offered moral support, and simply accepted the student output from MEC.

All three partners had personal agendas at least as strong as their shared professional agenda. [C] wished to realise her desire again to work collaboratively in the ways described above. [M] had a strong motivation to collaborate, as the only secondary mathematics educator in her university department, as to find a purposeful professional context in which to work and talk with other such specialists was a big incentive. [A] wished to move his work pattern towards having a more coherent composition, and MEC was the ‘missing piece’ to replace courses that he was ready to pass to others. All three also had a vested professional interest in the potential impact of this new TTA initiative. [A] and [M] had relatively small recruitment figures – at UCC the norm was around 14, at Portsmouth it was around 20 - while [C] ran a two-year ‘conversion’ PGCE that the new provision might put at risk.

METHODS

This research began after the outset of the MEC piloting project, when it became clear that the inter-university collaboration itself was an interesting phenomenon. The research evolved not so much as a by-product as a *by-process*, which was deliberately initiated early on when its potential significance was realised.

When deciding how to pursue such a research study, alongside the development project that is MEC, it became clear that only methods that could handle the social and cultural aspects of a collaboration would be appropriate. A form of case study was seen as most fit for the purpose. Beyond the three participant-researchers, four ‘observers’ were enlisted for their distinctive perspectives on the collaboration,

namely the TTA Project Manager: *Alf Brown*, the TTA-appointed MEC Evaluator: *Peter Seaborne*, the MEC Consultant most closely associated with this MEC: *Keith Hirst*, and the TTA Regional Recruitment Manager: *Raywen Ford*. This enabled there to be seven ‘voices’ about the ongoing collaboration, all of whom had witnessed its growth. All reviewed and reflected on evidence left by this process.

DISCUSSION OF OUTCOMES TO DATE

What prevents those engaged in secondary mathematics ITE courses from greater collaboration and sharing of good practice? A range of reasons appear to combine to prevent this, regardless of any pre-dispositions of the professionals involved. Some factors inhibiting collaboration are illustrated graphically in diagram 1

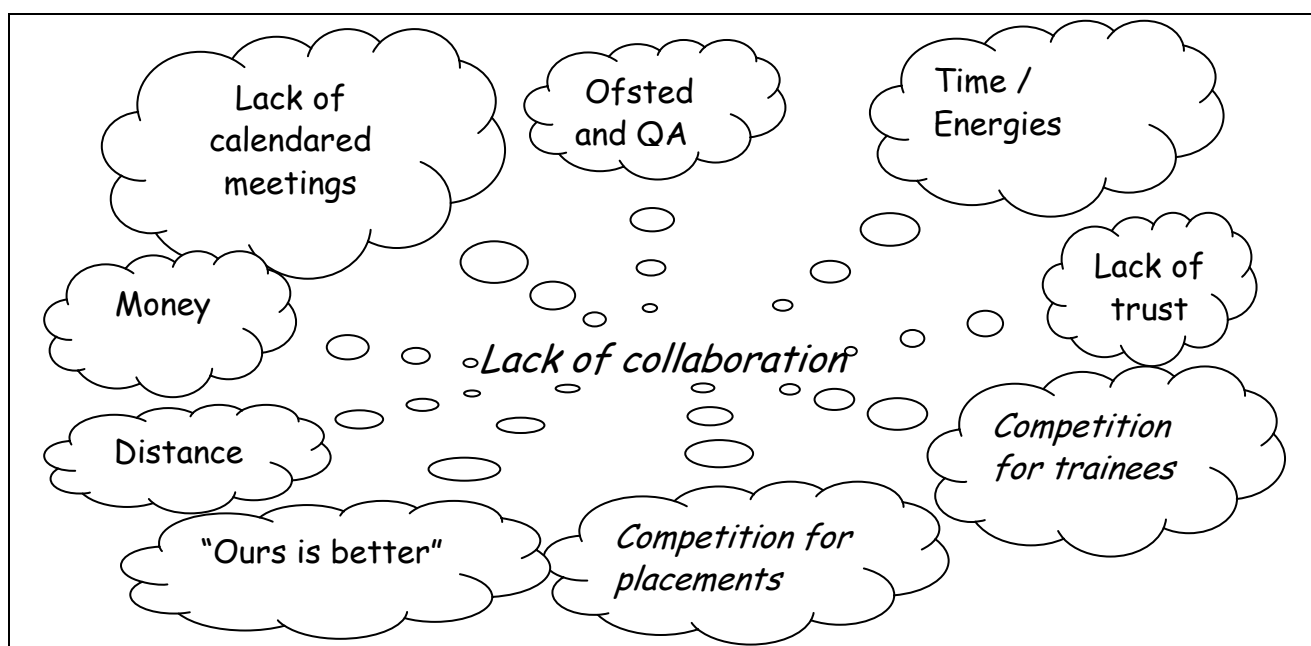


Diagram 1

Observers have called ‘Time/Energies’ *pressure of work*, or referred to leadership as an additional factor. However, our data suggests that the latter is not a key factor, if sufficient will and creativity are present within the team. “(Cooperation has) given excellent opportunities for participants to study under the guidance of more tutors who are passionate about high quality mathematics education...” (Seaborne, 2004)

In both the researchers’ own independent and shared analyses of these factors, a major perceived inhibitor was the impact of outside agencies - especially quality assurance and Ofsted scrutiny. MEC is subject to four distinct types of such scrutiny. Initial concerns about how MEC would be quality assured, and its subsequent impact on the individual institutions did not materialise in practice. “The collaboration in all aspects of the course makes an important contribution to the quality assurance...” (Brown, 2004)

Constant scrutiny can lead to over-defensiveness regarding provision. Having crafted distinctiveness into course features, it is natural to keep this quiet, else it not be worthy of comment by e.g. Ofsted. This implicit ‘internal group culture’ can act to

prevent or inhibit external collaboration. ‘Justification fatigue’ can set in, and become an inhibitor, as, through collaborating, we might be called upon yet again to justify our ideas and practices.

However, in this case, there was already in place a level of trust sufficient to begin. “...strength gained from having three maths teams working together is clear and it has resulted in a level of trust that would not otherwise have occurred.” (Ford, 2004) The nature of the collaboration led to a deepening and broadening of initial trust. “The level of trust which was apparent from the beginning seems to me to have increased markedly over the past year, interestingly without appearing to infringe the necessary institutional autonomy which must continue to exist.” (Hirst, 2004) The institutional autonomy referred to manifests itself as competition: initially competition for recruitment of trainees, as each HEI attempts to meet its target numbers, and then for school placements within an increasingly saturated marketplace. This competition factor has been turned on its head by our collaboration: “... to the point of teaching on each other programmes, and accepting the judgement of each other when it comes to recruitment decisions, is refreshing as many people said that it would not happen.” (Brown, 2004)

Furthermore the three HEIs have collaborated and shared information about school placements across the region. Nine ‘shared’ placement schools agreed to work within the MEC provision by hosting its integral short placements. “As well as the three ITT providers involved, the partnership has drawn in schools in the region.” (Hirst, 2004)

The final significant inhibiting factor identified was that of the time and energies required to pursue collaboration. The demands of HEI, TTA, partnership schools, QA especially Ofsted, and scholarship, alongside meeting the complex needs of many trainees, meant that collaboration between HEI often gets side-lined. It might be argued that collaboration is stronger in terms of research and development than in terms of teaching. Research collaborations are encouraged by HEI. With the nature of running ITE routes being such as to draw considerably and constantly upon the energies of tutors, it is hard to justify devoting sufficient energy to an ‘amorphous idea’ like regional collaboration. MEC has allowed the team to legitimise time to discuss and share practices. Regional development time is funded within the pilot, so this was not, as before, a barrier. Also, there was positive encouragement from each HEI to become fully involved. The most important factor so far is that all three partners feel refreshed by sharing in the initiative to the point of seeking to spend time creating new materials, and giving more time to experimenting with teaching and learning strategies.

Each of us has thereby been able to develop an area of expertise, and so during this academic year, all three institutions have hosted sessions delivered by ‘experts’ in their field – as each has shared this with approximately 100 PGCE mathematics trainees. Feedback from each set of trainees has been excellent, and they have expressed complete support for the principle and practice of collaborating in this

way. We are teaching them by our lived example, how collaborating on mathematics education can be a sustainable, energising experience that enriches and extends our professional development.

Sustainable collaborative efforts involve teaming, communication, and on-going dialogue among stakeholders, and the shared belief that all stakeholders are accountable for all learners. Teaming can result in the easing or erasing of boundaries between general and special education teachers as well as service providers. It can provide fertile ground for the sharing of expertise and for the energising of team efforts through the linking and sharing of resources. By continually talking and problem solving, members develop an understanding of and appreciation for their role in meeting the needs of all learners and the development of a community of learners whose foundation is shared expertise. (Stump & Hagie (under review))

This paper has begun to explore the extent to which, in this case, a collaborative culture can subvert and supercede a competitive one. By researching and analysing factors, the participants are also attempting to strengthen its long-term viability.

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