EDUCATION & TRAINING FOUNDATION

University of Sunderland

MA Short Course Programme

"Why do I need maths GCSE when I only want to be a brickie?"

Synopsis

Just imagine; you have finally left school and are looking forward to learning the trade that is going to become your profession only to realise that you've also got to continue to study GCSE maths until you achieve the accepted (but elusive) C grade! You've been studying GCSE maths for the past five years and trying to achieve this grade for two and now you've got to do it all over again?

This study investigates why students don't fully engage with their GCSE maths programmes and seeks to offer suggestions to improve learner engagement and motivation in the subject while studying their chosen vocational programme.

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Abstract

This small-scale research project investigates why vocational learners do not fully engage with GCSE mathematics as an integral part of study programmes.

The Wolf Review [2011] is critical of existing vocational qualification frameworks in England and one of the recommendations from the report was that GCSE maths and English should be integrated into programmes of vocational education. This research indicates how despite good intentions, this policy has had a number of unintended consequences in practice.

Conditions of funding stipulate that students who have not achieved GCSE grade C (or above), must continue to study maths and English as part of their study programme regardless of their vocational aim. This problem is compounded by another factor – vocational students engaged in these study programmes do not see the relevance of the approaches adopted in the development of numerical skills as they are currently taught and assessed in GCSEs. This manifests itself in poor attendance and lack of motivation.

Narrative inquiry [Connelly and Clandinin, 1990], combined with a case study approach are used to highlight experiences of tutors and students engaged in the delivery of study programmes. Open forum sessions focusing upon the background, career aspirations and motivation of students engaged in the research provide a fuller picture. Observations of teaching and learning practice are examined to highlight strategies and explore areas of curriculum design and pedagogical practice that could be improved. Keller's Model of Motivation [2009] and Sennett's [2008] framework of the processes involved in the development of craftsmanship inform the analysis of data sets collected.

Initial findings suggest that students do not see the p9oint of studying maths outside of their chosen vocational subject area. Data from tutors and students also indicate that numerical skills required for vocational curricula (in this case the bricklaying curriculum) are already embedded, well understood and that the challenge is more about how these numerical skills can be developed and assessed more effectively to demonstrate achievement at GCSE level.

Key words: vocational learning, maths, Further Education, 16-19 Study Programmes, craftsman, motivation.

Introduction

This research project is funded by the Education and Training Foundation (ETF) and supported by the University of Sunderland's Centre for Excellence in Teacher Training team (SUNCETT).

The original aim of the study was to investigate the low pass rates in GCSE maths for those students enrolled on the Bricklaying study programmes at East Durham College and explore any correlation to the poor attendance in these lessons. However, this shifted somewhat during the initial stage of the investigation when data showed that the current academic year had seen an increase in attendance in the department under scrutiny. The main question then became "so why the low pass rates?" and this is where the research journey begins.

East Durham College is a Further Education College in the north east of England and is spread across three campuses; two main campuses in Peterlee and Durham and one satellite centre (the Technical Skills Academy) on an industrial estate in Peterlee. The college predominately specialises in vocational educational programmes pitched at levels one and two, however, it is fully inclusive and has a sixth form centre, higher education department, provision for 14-16-year olds as well as departments for students with special educational needs. The total number of learners enrolled in the current academic year is 5063 with the number of full-time learners standing at 2557.

The decline in pass rates and rise of non-attendance in GCSE maths classes for those enrolled on Bricklaying programmes, were noted during the College's regular quality assurance activities and despite various strategies being implemented throughout the year to alleviate the problem, it was decided that further investigation was needed.

To give some context to the study, the following table shows the pass rate data gathered for the previous two academic years. The decline is apparent and warrants further investigation.

Year	**Full college pass rate (grades A-G)**	**Full college pass rate (grades C/4 or above)**	**Construction Dept. pass rate (grades A-G)**	**Construction Dept. pass rate (grades C/4 or above)**	**National pass rate (grades C/4 or above)**
16-17	91.6% (169)	25.8%	88.2%	21.1%	71.4%
17-18	91.6% (228)	14.7%	86.7%	25%	70.7%

The objectives were as follows:

- Analyse the data collected during Departmental Reviews for the Construction Department (in particular the Bricklaying learners) around attendance and target setting to look for correlation and/or commonalities
- Examine teaching, learning and assessment practices with a view to determine pedagogical experience in collaboration with study programme elements
- Investigate the learner experience of their chosen study programme as a whole
- Evaluate the extent to which maths is embedded within the Bricklaying learners' vocational sessions

The research uses mainly qualitative methods and includes open forum sessions, individual interviews, anonymised questionnaires and data from observations of teaching practice. The open forum sessions allow participants to come together to voice opinions and recount their own stories of experience, while the individual interviews allow participants to speak more freely about any aspects that were not covered during the open forum sessions.

Pedagogical practice will be examined and linked to student engagement and motivation. Culture and background will also be a focus to draw upon the expectations of both teacher and student in relation to studying.

A timeframe of six months is allocated for the study, which allows time to monitor, measure and evaluate the data collected via the various means.

Literature Review

Hypothesis 1: Is policy reform a major contributor to low pass rates in GCSE maths?

One of the recommendations of the Wolf Review of Vocational Education [2011] was that students who have not achieved a grade C (now grade 4) or above in English and mathematics, must continue to study them alongside they chosen vocational programme. The Government was in agreement with this recommendation and in its response to the review [2011], stated that a reform of the current GCSEs along with finding suitable alternatives to afford all learners the opportunity to progress was to happen. The commission of a maths professional development support programme for teachers was included along with the promise to continue to fund existing maths teachers to build on existing knowledge and become recognised as specialists. However, educational specialist Mike Baker suggests in his article in the Guardian [The Wolf Review won't save non-academic pupils, 2011], that the Wolf review won't help vocational learners as it focuses on academic qualifications, which vocational students will not be motivated to study when they have already failed them several times.

The Wolf Review Recommendations Final Progress Report [2015] confirmed that Ofsted inspections and other progress and quality assurance measures, were also reformed to hold educational institutions to account over these new developments. Part of Ofsted's Common Inspection Framework [2015] included making judgements on how well learners develop skills including maths and English from their starting points and in line with being prepared for the next stage in their education, yet according to the McKinsey's Report on Education to Employment [2014]; employers cannot find appropriately skilled people to fill their vacancies! This in part, is due to the educators, employers and learners not communicating appropriately and therefore expectations are not fully understood with regards to employability and the world of work. The content of a Functional Skills qualification is deemed to be more appropriate than a GCSE within vocational contexts, with GCSE being the preferred route for the more academic [ETF, 2014 - report on the Effective practices in post 16 vocational maths]. The maths learned in Functional Skills are often based around problem solving within the workplace or other real-life situations. Vocational learners make more sense of and can relate to these.

Social bias prevents many from following a vocational route and the belief that individuals are either good with their heads OR their hands is supported by the recommendation of both a 'technical' and 'academic' post 16 route fueling the notion of a vocational-academic divide [IPTE, 2016]

While academic subjects are relatively stable over time, vocational ones are always changing and evolving with an abundance of choice, type and level available. The Wolf Report (2011, p84), recognises that there are too many qualifications available with varying levels of standardisation and

quality which makes progression for learners difficult. Awarding bodies release new courses to try and encapsulate every eventuality for every possible type of learner so the choice is vast and somewhat confusing. This makes the regulation of standards very difficult in vocational education. In Mary Curnock Cook's article 'Vocational Education needs a new Toolkit' [2017], she brings to our attention that employers are only aware of certain types of qualification and use these as a gauge (or checklist) for the standard of student they would possibly employ so when it comes to the wealth of vocational qualifications in existence, they may not know their worth, particularly in maths and English. Not knowing or understanding which route to follow coupled with too many qualifications to choose from surely puts learners at a disadvantage.

Hypothesis 2: Is curriculum design appropriate for vocational learners?

The study also considered the way the curriculum has been designed at the College and the effect it has on the learners. Although Government policy dictates what is to be included in the education of young people, the way in which it is implemented is the responsibility of the educational institution itself and this can have a profound effect on the learning experience of those enrolled. A recent study into the preparation of mathematical education in England concluded it was weak against other countries surveyed [University of Nottingham, 2017 - Mathematics in the Successful Technical Education of 16-19-year olds] and noted that the 'occupational' mathematics needed, was not clear to those involved and suggested that a bank of occupational standards was needed. This sentiment is echoed within the Education and Training Foundation's report of 2014; Effective Practices in Post-16 Vocational Maths, where it was suggested that Functional Skills qualifications are more relevant than GCSEs within vocational contexts. It commented that the GCSE examination mode is not helpful in preparing vocational learners for the world of work and suggested that there is a need for further debate for policy makers and practitioners.

The Final Progress Report of the Review of Vocational Education [2015], stipulated the design of the curriculum offer must include a main aim qualification that has clear progression routes, maths and/or English (if the learner has not reached 19 years of age and already achieved a grade C in these subjects) and the provision of work-related activity to increase the employability skills of the learners. A good curriculum offer needs to have all the elements that help to support the learner into future educational routes or employment [HM Government, 2011 - Building Engagement, Building Futures: Our Strategy to Maximise the Participation of 16-24 Year Olds in Education, Training and Work].

Taking this idea into the classroom, teachers are bound to consider the wider learning experience, so as well as teaching and assessing their own specific subject, they also need to include the development of personal, social and employability skills. Add to this the incorporation of maths into vocational subjects and their responsibilities expand even further and how do we know the teacher's

mathematical skills are current and sufficient to cover the level required? What level of expertise should vocational teachers have in subjects other than their own specialism and would it be enough to teach others? Should it be expected of them? After all, we don't expect maths teachers to teach bricklaying! A report conducted on behalf of the National Research and Development Centre [2006], confirmed that outcomes for learners were stronger when maths and English are embedded into their vocational programme, although a collaborative model including subject specialists works best - outcomes were not good when the embedding of maths and English was solely down to the vocational teacher. Collaborative learning is supported by Bruner [1985] and Vygotsky [1980], whose research indicated that this type of learning environment is necessary for learning to take place. Coffield [2008], refers to Government targets and their pressures on staff and suggests that focusing on teaching and learning would help the other priorities fall into place indicating where the strongest focus should be.

Hypothesis 3: Are learners motivated to learn appropriately?

"if the task is judged important, if the probability of success is high and a positive effect is generated or associated with the task, then students will be motivated to engage in the new task." [Tileston, 2004]. The study also looks at student motivation and explores the reasons behind their choice of vocational course. An examination of how they learn is considered and further scrutiny into why they don't. The assumption that all learners should be taught from scratch is queried (effective practice in post 16 vocational maths report). If learners are repeatedly taught the same stuff without the inclusion of stretch and challenge, they will become bored [Petty 2009, p110] so the teacher must be highly skilled and well-practiced in the development of learning. Keller's ARCS Model of Motivation [2008] suggests that learners will be motivated to learn if they believe they can succeed at it. Being successful and feeling good about themselves are key motivational drivers according to this theory so it is paramount that teachers are adaptive to learners' needs and build on existing knowledge, keeping them interested and engaged. According to Sennett [2008], "The length of practice must be judged wisely to ensure the individual's attention span is not exhausted and skills expand/increase which in turn lengthens the attention span." The key here is to know your learners and understand their capabilities, interests and limitations to try to modify and encourage behaviours in learning.

Methodology

The participants of this study include two groups of Bricklaying learners (seven from Level 1 and ten from Level 2 – all male), the Bricklaying teacher and the GCSE maths Programme Lead. They were all approached separately and briefed on the purpose and nature of the study with assurances that all information collected would be treated sensitively, confidentially and without reprisal. An open and

honest dialogue was expected throughout, and all were advised that the findings would be shared with senior management.

Qualitative methods were used to provide a rich picture of both learner and teacher experience of the delivery and inclusion of GCSE maths within the Bricklaying Study Programme. This type of method allows for emotions, reactions, attitudes and perceptions to be recorded and for the researcher to follow up on answers given, which allows a more dynamic approach. Quantitative data was used to corroborate information given where applicable and to quote Cameron [1963] on his thoughts about processing data for sociology reports, 'Not everything that can be counted counts and not everything that counts can be counted.'

The first method used was an open forum session where participants of each group were encouraged to discuss contents of lessons and debate learner engagement strategies used within. These sessions were separated according to the level of vocational aim being studied to exclude any outside influences from the other group. This approach promoted learners to tell of their own experiences and acknowledge that others' may be different, however, it transpired that most were the same or similar. The learners were reassured that the answers they gave would be anonymised and confidential and all were made aware that this was not an opportunity to personally attack their teachers. There was no pressure to participate if they decided against it.

Individual interviews were carried out with learners following the open forum sessions and questionnaires were completed, both of which included information about their background, family and career aspirations. Questions were based around reasons and/or influences for enrolling onto this particular study programme and how maths is used within their chosen vocational area. The teachers interviewed were asked about the background of their chosen subject specialism as well as their thoughts on Study Programmes, embedding and collaborative activity. The results of some of the discussions led to the query of pedagogical practice in mathematics and how valid current teaching practices are. According to Kolb (2002, p38), "Learning is the process whereby knowledge is created through the transformation of experience" and this was not the message coming through. All information given was recorded to triangulate the results and add validity to the findings and subsequent recommendations.

The Plan

Following an initial meeting with the Bricklaying lecturer, a plan was put in place along with a timeline of events. This initial meeting acted as a fact finding exercise whereby timetables were discussed to ascertain convenient days and times to arrange the meetings required with the learners involved.

Careful consideration was given to the scope of the research necessary in comparison to the learners' workload and a timeframe of six months was allocated. This allowed time for some background reading to help become more familiar with the department, the problem and possible reasons for it. The open forums and interviews with the learners took place between practical workshop lessons in the office beside their workspace, as suggested by their teacher. Further meetings with the bricklaying lecturer were arranged along with the Programme Area Lead for maths. There was also some time factored in to present initial findings to the Maths & English manager and the Maths and English team, who were also aware of the study. A brief timeline of the plan follows.

Phase 1 Nov - Dec 2018	Phase 2 Jan - Mar 2019	Phase 3 Mar - May 2019
•Select participants •Arrange meetings: •1-1s with learners •interviews with teachers •open forums with learners •make notes, decide on questions	•Carry out interviews, 1-1s and open forums •Visit workshops •Visit maths lessons •write up notes •meet with maths manager to discuss initial findings •Examine lesson observations	•Pool info gathered •Present to curriculum managers •Present to M&E team

Ethical considerations

The following ethical statement was read out to all participants of the research:

Information for this research will be gathered with integrity, honesty and trust following BERA's ethical guidelines [BERA 2018]. Any involvement is voluntary and informed consent will be sought by all participants prior to the research commencing. Participants have the right to withdraw at any time and can do so without penalty. The purpose of the research will be transparent and supported by a clear rationale. Confidentiality and anonymity will be respected to ensure privacy and protect identity where applicable. All data will be stored securely and in line with the General Data Protection Regulations.

Participants were also made aware of the impartiality of the researcher and that great care would be taken not to display any emotion during research sessions in case it sways the participants' opinions. Questionnaires were anonymised and no full names are used in the report.

Analysis of data

Interview with bricklaying lecturer – Peter's story.

"Stories are 22 times more memorable than facts alone" [Bruner, 1986]

What began as a few questions to ascertain his opinion as to why his learners had poor results in GCSE maths turned into a story telling session about his own experiences of schooling and his background growing up as the son of a self-employed bricklayer. Connelly and Clandinin [1990] suggest that recounting our own experiences in story form adds expression to the inquiry and allows us to see how others experience the world and this is true of Peter's story. He described how he used to help his Dad from the age of ten and how he would watch as he expertly used bricks and mortar to create and develop new living spaces. He was proud of his Dad and wanted to follow in his footsteps and learn the craft for himself so, when he left school a few years later, he worked alongside him as a labourer. His intention was always to learn the skills to become a brickie because "if you had a trade", he said, "you would never be out of work". It didn't matter that his maths GCSE was a grade D - he learnt all the maths he needed to know for his trade, from his Dad (who had left school with no qualifications but was exceptionally good with numbers). Peter learnt from, in his words, "the best".

Time moved on and in 2008, a recession hit the construction trade. By now Peter was a fully-fledged bricklayer and not only was he commanding high wages, but he was also immensely proud of the work he produced, which now rivalled his Dad's. He had indeed, mastered his craft [Sennett, 2008]. However, the recession coupled with the physical demands of the job, prompted Peter to look for a career change. He decided that his ideal job would be to pass on the skills and knowledge he had learnt and built on over the years and become a teacher within the construction industry. This is when he realised he needed a better grade at GCSE maths to be able to enroll onto the teaching programme.

Motivated by the need to provide for his family and believing in his own ability to succeed, Peter completed the relevant maths course and passed the exam, enabling him to begin his journey into teaching where he is today. He explains that he had no option but to follow this path – the construction trades were in crisis and he needed to feed his family. This was his motivation to succeed. He said that money is a big motivator for his learners and explained that the incentive of a weekly bursary has prompted the rise in attendance in the GCSE maths classes (attendance at vocational lessons wasn't a problem), although students learnt little while they were there. The learning of maths in their vocational lessons is enough for them – they see how it benefit them and understand it in relation to their craft. Students who are intrinsically motivated to learn are much more likely to continue learning than those who are extrinsically motivated [Walters and Grusec, 1977]. These learners are clearly not intrinsically motivated in GCSE lessons, which would explain their lack of ability to pass the exam with the required grade, they are however, motivated to learn the required maths for their craft and can happily demonstrate a variety of calculations they use regularly.

Peter tells his story to his students to try to encourage them to take their maths studies seriously and learn as much as they can while in college, but admits it falls on deaf ears. All of them want to work in the bricklaying industry and most of the level 2 learners are progressing to apprenticeships once they've finished their current course – the lure of working and making money outweighs the desire to continue studying. These are practical people who think with their hands. They are proud of the work they produce and constantly strive to make improvements, regularly seeking approval from their teacher. They know that they don't need GCSE maths to get onto an apprenticeship, therefore they don't need it to be a brickie! The Education and Training Foundation's final report on Effective Practices in Post-16 Vocational Maths [2014, p26], agrees that GCSE maths is designed for those going to higher education and does not help prepare learners for the world of work. They learn what they need to know for their craft within their vocational lessons. How many people know their 75 times table? This is the norm for a brickie as is working out scale, converting measurements, working with angles and suchlike. There are lots of numbers involved in creating and building the perfect wall!

The learner voice – findings from interactions with learners

Analysis of the questionnaires revealed that none of the learners are from an academic background where they might be encouraged to study subjects other than vocational (72% of their parents were employed and of these, 77% worked in retail or factories). All of the learners wanted to be bricklayers and knew there were jobs available in the local area and they all mentioned money as a motivator. Feedback from learner discussions supported a lot of what Peter had already said, particularly around motivation and the desire to succeed in their chosen subject. They were unhappy about having to attend GCSE maths lessons because they knew they didn't have to actually pass the exam to get onto the next level course or an apprenticeship [Institute for Apprenticeships and Technical Education, 2019]. They saw this as a complete waste of time, particularly as they've already failed the exam several times at school. They claimed motivation was low because they couldn't understand or relate to the content – they said it had nothing to do with bricklaying. "When would we ever use Pythagoras in bricklaying?" was asked on more than one occasion. Other factors contributing to a lack of learning included:

- Staff absence / changes in staffing
- Merged classes (usually as a result of staff absence)
- Supply teachers who don't care or are not prepared or fully committed
- Room changes
- No interactive lessons
- Mixed vocational groups (bricklaying, hair & beauty and IT in one class)

The learners also stated that they liked the teachers and did not blame them for making them go to GCSE maths lessons.

The teachers' voices – feedback from discussions with maths & English teachers

Discussions with the teachers corroborated the learners' feedback, however, their viewpoint differed somewhat. Teachers spoke of staff absence having a big impact on their teaching. Maths and English classes are timetabled at the same time, which means that if a member of staff is absent, groups need to be merged. This in turn means room changes, giving learners the ideal opportunity to turn up late (if at all) to the lesson. Teachers are timetabled to teach in various classrooms and much time is spent lugging resources from room to room. There is a large mix of skill levels as well as learners from different vocational areas, which makes planning difficult and contextualisation almost impossible. Teachers are also restricted by the GCSE curriculum and the timeframe in which to teach the topics, particularly to learners with such a varied skillset. Key themes from observations of teaching practice are based around the lack of differentiation and stretch and challenge used in lessons to meet all learners' needs. Teachers know motivation is low for the bricklaying learners, but they have a mix of vocations in their classes, so it is difficult to manage their delivery to be effective for everyone. Should they ignore those who won't participate in favour for those that do?

Key findings

The findings show that Bricklaying learners do not see the relevance of learning maths outside of their vocational area. They are unclear of where their numerical skills lie within the GCSE context and do not understand the content being taught, the purpose of which is unknown and totally alien to them. Their lack of motivation transpires into low-level disruption or non-completion of work, which adds to the teacher's frustration and already heavy workload. Several vocational areas come together in one class, making it very difficult to contextualise the content. Add to this the varying skill levels involved, and it becomes almost impossible.

Adding an incentive of a bursary to boost attendance seems to have worked well, however, would the same type of monetary carrot be enough to encourage the already battered and bruised learners to learn the GCSE maths curriculum well enough to eventually pass the exam at the expected level? Perhaps - but will the months of studying something you don't understand become too much to bear? Does the carrot then become the stick? Mike Baker [2011] disagreed with elements of the Wolf Review [2011] in his article *The Wolf review won't save non-academic pupils* and suggested that educational providers should be the ones to decide what's best for vocational learners, not the Government. He likens the repeated attempts at achieving the required GCSE grade as 'flogging a dead horse' and suggests that alternative qualifications could be a better route to take, particularly as GCSEs

do not necessarily meet the functional needs of the employer. However, the employers included in the ETF's report on *Effective Practices in Post-16 Vocational Maths* [2014], found that maths competency in young people is insufficient, citing a negative culture of maths learning and an acceptance of failure as the culprits.

Recommendations

It is recognised that some of the recommendations lie within the realms of Government policy and other decision makers and therefore cannot be changed by individual learning institutions.

Policy reform – the Government has announced the re-introduction for Functional Skills maths and English from September 2019 for learners who require an alternative to GCSE. This will be a welcome alternative to those in vocational education and could support them well into employment, however, learners should be carefully assessed to ensure the correct pathway is chosen and their progress monitored closely to inform change if required. A different, more considered approach to assessing the mathematical skills for vocational learners could be a way of determining the skills that are needed in their intended place of work. A set of vocational mathematical standards may the answer and perhaps working with Functional Skills providers could provide the solution to a fairer system. Clear guidance and information around the qualifications and their content should be made available to employers so they are fully briefed on the type and level of skills involved.

Changes to Apprenticeship Standards 1 – the criteria for the new Apprenticeship Standards for Bricklaying need re-visiting. While the review of vocational education [Wolf, 2015] stipulates that students under 19 years of age must continue to study GCSE maths and English until they achieve a grade C /4 or above, the Apprenticeship Standards do not mirror this. The standards state that apprentices who have not already gained the required grade at GCSE, must have achieved a level 1 qualification in both subjects and take the test for level 2. *There is no mention of having to pass at level 2.* This should be standardised to ensure a fair system.

Changes to Apprenticeship Standards 2 – the inclusion of an extra layer of wage to encourage learners to continue to study and achieve maths and English qualifications at the expected level, could prove successful. For example; those who achieve a level 2 (GCSE or equivalent), would receive a higher rate of pay than those that don't. This incentive could help build a more capable workforce with a wider range of skills.

Revisit arrangements for agency staff – expectations for short-term staff should be explicit and resources available for their use which are standardised across the department. Learner profiles should be made available to give an overall picture of the group. There is a notion that temporary staff tend to 'babysit' classes, with no real learning taking place and this can be avoided with the correct support and appropriate resources.

Timetabling 1 – liaise with curriculum teams to help decide which vocational areas should be in the same maths class. Make every effort to avoid large gaps between lessons as well as Monday mornings and Friday afternoons.

Teaching environment – specific maths and English rooms should be allocated so learners know where they should be going and have no excuse not to get there. This will also allow the teacher time for preparation as they won't be constantly moving from one class to another with all of their resources.

Pedagogical practice – ensure elements and topics are contextualised to aid understanding, particularly within GCSE maths classes. Learners asked when they would use Pythagoras in bricklaying as they really didn't see how it fit. They must see the relevance of what they are learning and be able to apply it in their own situations. Consideration must be given to gaps in learners' knowledge noted at initial and diagnostic assessment stage and these must be addressed before progressing to new learning. The use of individual target setting needs revisiting to ensure this process is fully understood so that it can be embedded to good effect. Teaching and learning should be made explicit using strategies based on Hattie's Visible Learning theory.

Collaboration – use a joined-up approach to effect learning. Enabling teachers to collaborate on the progress of their shared learners will help them to impact positively because of the common understanding they will gain [Hattie, 2009]. Vocational and academic teachers need to collaborate in the teaching of specific elements of their curriculum to enable learners to see the connection. Opportunities for the teachers to teach each other about their own subject specialism should be built into their timetable and included in staff development events. Joint team meetings and a greater presence of each teacher in the other's classroom would present a united front and show learners that everyone is working together to achieve a shared goal.

A final recommendation is to explore other vocational areas to see if the same problems exist. It would be interesting to note any correlations with areas such as Hairdressing and Beauty who are predominately female.

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