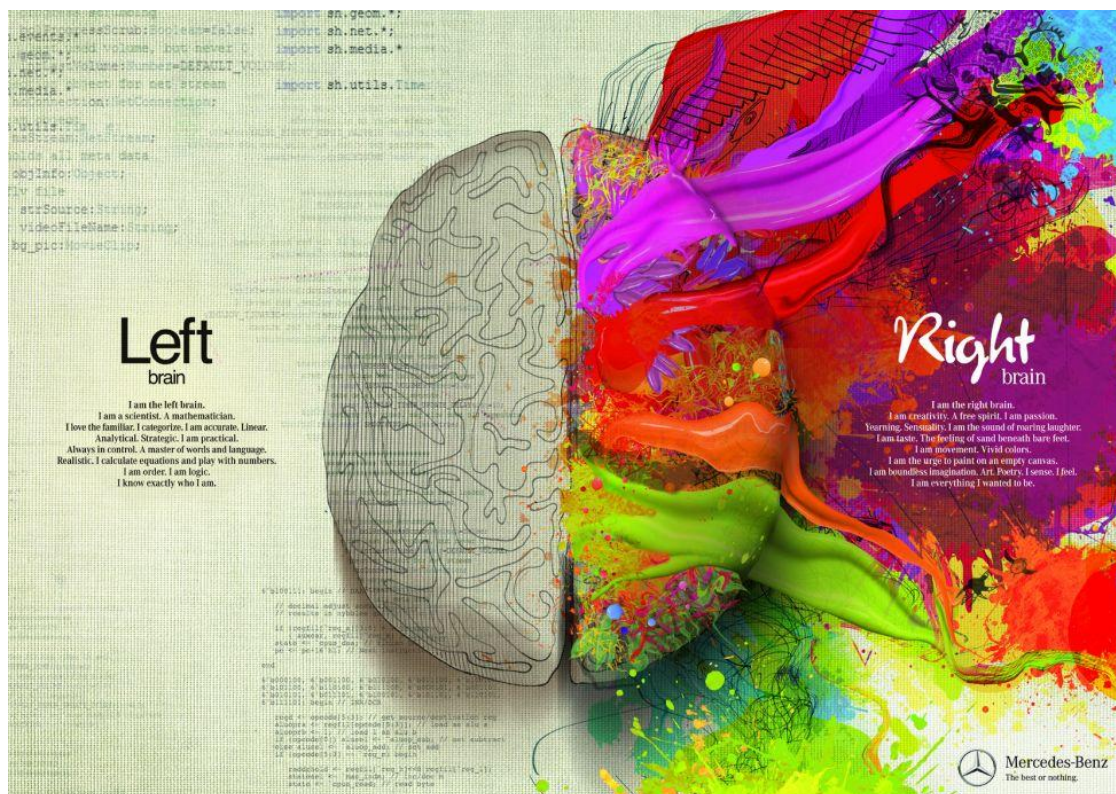


The Impact of Visual Learning Techniques on Tutors And Learners in Adult Community Learning

A Picture Is Worth a Thousand Words
credited to: Barnard, Confucius and Turgenev, (1921)

Maureen Frazer
Derbyshire Adult Community Education Service





Left brain

I am the left brain.
I am a scientist. A mathematician.
I love the familiar. I categorize. I am accurate. Linear.
Analytical. Strategic. I am practical.
Always in control. A master of words and language.
Realistic. I calculate equations and play with numbers.
I am order. I am logic.
I know exactly who I am.

Right brain

I am the right brain.
I am creativity. A free spirit. I am passion.
Yearning. Sensuality. I am the sound of roaring laughter.
I am taste. The feeling of sand beneath bare feet.
I am movement. Vivid colors.
I am the urge to paint on an empty canvas.
I am boundless imagination. Art. Poetry. I sense. I feel.
I am everything I wanted to be.

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INFORMATION / CREDITS

Name of project: Left Brain/Right Brain Client: Mercedes Benz Agency: Shalmor Avnon Amichay/Y&R Interactive Tel Aviv Date: Feb 2011 Chief Creative Director: Gideon Amichay Executive Creative Director: Tzur Golan Creative Director: Yariv Twig Art Director: Gil Aviyam, Dror Nachumi Illustrator: Gil Aviyam, Lena Guberman Copywriter: Sharon Refael, Oren Meir Executive Client Director: Adam Polachek Account Supervisor: Yael Yuz Account Manager: Mayran Sadeh Head of Strategic Planning: Yoni Lahav Planning Director: Zohar Reznik Planner: Nili Rabinowitz <http://scaryideas.com/content/22036/> - 14 Feb 12

Abstract:

We are all aware of the power of imagery in advertising and the millions of pounds spent in the industry to influence our spending decisions, so why has this powerful tool been so overlooked when it comes to teaching and learning in the adult sector?

This research paper looks at how the use of imagery in teaching and learning can potentially impact on learner achievement and recall. It draws on the work of Hattie's effect sizes (1999), Petty's Evidence Based Teaching (2006) and predominantly on Buzan's work and creativity on mind mapping techniques (2005) linking left brain to right brain using words, colour, images and associations to enhance memory recall.

As part of the research, a number of tutors working at Derbyshire Adult Community Education Service (DACES) took part in joint practice development or supported experiments to produce visual resources to use in the classroom, thus impacting on their own CPD. The second part of the experiment involved delivery using the new resources. Learners were then encouraged to use visual learning techniques (paper-based or electronic) as part of their learning to determine the impact of such techniques on learning and recall. Impact was then monitored either by graded results or with the use of questionnaires and feedback forms to gather evidence for the research project.

The majority of the experiments involved the use of technology (netbooks, projectors and Mind Genius software of which DACES hold a limited number of licenses). Some sample mind maps are included in the appendices along with supplementary evidence.

Introduction:

This paper illustrates how Derbyshire Adult Community Education Tutors were encouraged to take part in joint practice development or supported experiments based on the theme of visual learning. Resources created during the experiments, such as pre-created mind maps or reference guides, were then used in the classroom and the resulting impact measured in terms of tutors CPD and learner understanding and recall.

Up until 2009 the majority of CPD carried out within DACES tended to be prescriptive and organisation led (tutor development days, Moodle training, safeguarding and EDI) rather than tutor based and personalised. This emphasis changed in 2010/11 when two colleagues participated in the 2nd cohort of the Research Development Fellowship and introduced the themes of Joint Practice Development and Supported Experiments to the organisation. The resulting research paper '*Explore, Experiment, Improve your Practice: Action Research in Adult Community Learning*' (Joy-Matthews and Trace, 2011) was well received. It gave tutors the opportunity to try something different that was specifically relevant to their curriculum and teaching practice. This research paper continues with the theme but concentrates on the use of visual techniques used in teaching and learning.

From a previous BECTA funded project DACES had purchased 30 netbooks and licences for the mind mapping software Mind Genius. Although the potential for the mind mapping software in

terms of timesaving, planning, delivery and impact on learners is apparent, uptake had been limited. It was felt that this slow implementation was mainly down to the time factor involved in learning the skills to use this tool professionally balanced against the daily commitments of an already overstretched workforce.

Crowley (2009) as quoted in Coffield (2010) p.4 supports this by stating'

'most people resist change from the best of motives not the worst and leaders or managers of change need to find out why there is resistance and work with it before they can implement change'

As the majority of the netbooks and some licenses had already been allocated to members of the existing Change Agent Team (SLC - Subject Learning Coaches, Mentors, PDAs- Professional Development Advisers and ITT - Initial Teacher Training Team), it seemed clear that it should be these people plus Advanced Practitioners who were approached to participate in the project initially, thereby increasing their skills, which in turn would impact on the tutors that they support and then ultimately the learners. The opportunity was advertised to all Change Agents and Advanced Practitioner's in each curriculum area in line with DACES Equal Opportunity policy. Using mind mapping techniques was not an essential requirement of the application process, but projects needed to have an 'imagery' context of some description.

The 'research question' is, 'Does the use of visual techniques impact on tutors CPD and on learners understanding and recall?'

The Setting:

Figures from DACES Self Assessment Summary Report 10/11 - dated 9 Feb 2012 indicate that our Service is the largest provider of part-time adult learning opportunities in Derbyshire employing approx 400+ tutors, the majority of which are part time, varying from 2-18 hours delivery per week. Courses are offered across 15 Sector Skills Areas. Learning programmes take place mainly in our own 23 main centres plus approximately 100 outreach venues. All tutors are committed to undertake CPD despite the challenges of location and number of hours teaching, so this is a challenge for DACES as an organisation. Whilst DACES constantly strive to ensure that a quality service is provided, and support staff CPD to achieve this, there has to be a balance drawn to counteract working within the current climate of austerity and Derbyshire County Council current agenda - Changing the Way Derbyshire Works (CWDW). The Service have recently had a major restructure, which has impacted on Managers and Tutors alike. It is within this context that we wish to encourage tutors to review and constantly seek to improve their teaching practice and ensuring that the CPD is relevant and personalised. Our internal records indicate that only approximately one third of our tutors engage with CPD events and this proportion needs to be increased.

Initial research indicates that participation and satisfaction is increased if tutors have ownership of their own CPD and it is hoped that evidence from the previous experiments reinforced by those carried out within this project will further inspire both the Service and our tutors to look at CPD in a more positive light rather than something that is imposed upon them.

Research & Literature Review

In 2011 two colleagues, (Joy-Matthews and Trace -2011) undertook a research project, evidence of which is documented in their research paper '*Explore, Experiment, Improve your Practice; Action Research in Adult Community Learning*'. Their research was based predominantly on the work of Marzano (1998), Hattie (1999) and Petty (2006) on the concepts Of Effect Sizes, Supported Experiments, Joint Practice Development and Communities of Practice. The overall conclusion of their research indicated that Supported Experiments and Joint Practice Development have substantial impact on Tutors Continuous Professional Development in contrast to organisation -led CPD activities. My research project continues in the same context, but has the additional themes of cognitive and social constructive theories (work supported by Bevan, 2006), and then focusses on the effects of visual learning as the main overarching theme.

Petty's extensive work on effect sizes and practical approaches to teaching, (2003) suggests that

- - 'Teaching quality has at least three times the effect on learner success as any other factor' and stresses the importance of improving the quality of the workforce with the concepts of Supported Experiments, Joint Development Practice and Communities of Practice.
- Petty (2006) in his book 'Evidence-Based Teaching - A Practical Approach reviews the highest effect sizes recommended from Hattie's review and offers practical ideas to putting these techniques into practice.

The recognised consensus from all the work carried out to date is that effect sizes have marked impact on learner grades as detailed below: - Petty (2006)

- A teaching method with an effect size of 0.5 gives a one grade leap
- A teaching method with an effect size of 1.00 gives a two grade leap

Supported Experiments provide the opportunity for teaching staff to try something new, a new delivery style or technique and receive feedback on it both from supportive colleagues and the learners involved. (Cognitive theory). This is supported by Petty (2003) who describes a Supported Experiment as;

'a pilot or trial of a teaching strategy new to that teacher. Ideally it is a strategy that research has shown to work'.

This is supported by Sennett (2008) as quoted in Coffield (2010) stated;

'Tutors have the intellectual and physical space in which to experiment with ideas, techniques and resources, and to make mistakes in the constant search for improvement. They view their work as a 'shared experiment', as a collective exercise in trial and error'.

Joint Practice Development -is a similar concept but as described by (Coffield, 2008) involves the participation of two or more colleagues working on a joint venture who have the opportunity to share ideas during the trial process. (Social constructivism). This idea is supported by Fielding et al, (2005)

'Teaching and learning are improved by being informed by research, reflective practice, and 'joint practice development' (JPD) rather than by identifying and disseminating 'good practice'. JPD takes place where tutors, working as equal partners, have the time to create and adopt new practices with professionals from other institutions'.

Communities of Practice - (Lave and Wenger, 1991) takes this a step further and is viewed as work carried out by a community or curriculum team on a focussed project or idea, with results then being cascaded through a curriculum area, team or organisation. Wenger summarises Communities of Practice as;

'groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly'

All the above three methodologies are evidenced in this research paper.

Cognitive and Social Constructive Theories of Learning.

Bevan (2006) carried out some work on concept mapping in schools, this work was carried out using a social constructive approach (learners working in groups in comparison to working individually). These two approaches are theories I plan to consider within DACES experiments.

Bevan's experiment was conducted in schools as part of a Teaching and Learning Research Programme. He concluded that, in contrast to promises that using new technologies in the classroom improves learning, it wasn't the actual use of technology that impacted on achievement, but the collaborative aspects that were the key factor.

Cognitive Theory

According to Cherry (2012)

'Cognitive psychology is the branch of psychology that studies mental processes including how people think, perceive, remember and learn'.

This view is also supported by Reece & Walker (2003)

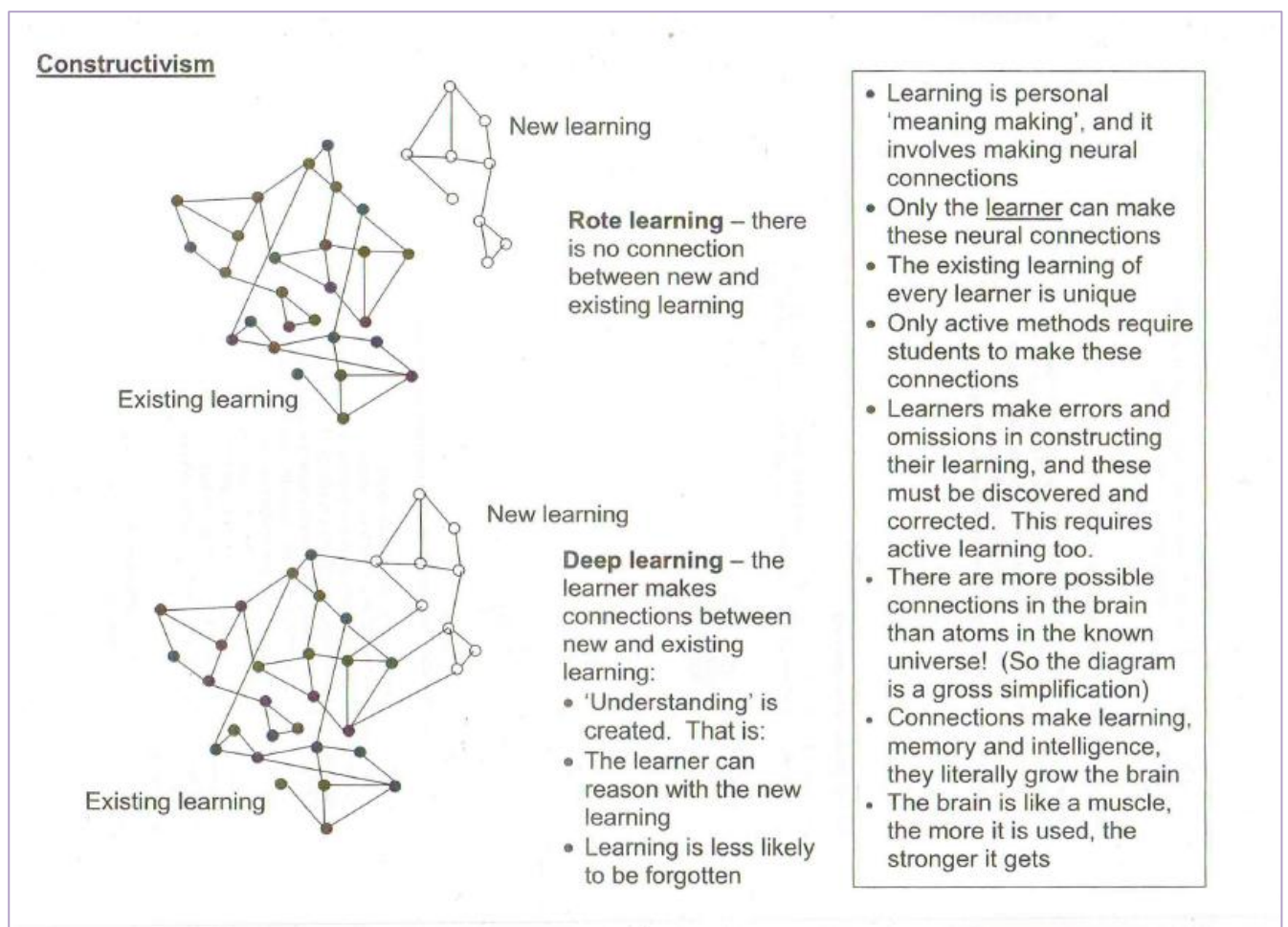
'Cognitivism is an academic approach based on the principle that learning accrues through exposure to logically presented information. Such logic comes from the subject itself. The

teaching strategies associated with this theory include videos, class presentations, readings, case studies, and debates. The advantages claimed include treating people like adults, faster learning and the building upon a base of information, concepts and principles to provide a rationale for action'.

Petty (2006) explores this further, relating to the use of constructive approaches to learning. In his book 'Evidence Based Teaching and at a recent Teaching and Learning Conference with the same name, Petty explains the concept of constructive learning activities as a process which;

- 1 - Requires the learner to make constructs (links)
- 2 - Set high order tasks requiring students to reason with constructs and make mistakes
- 3 - Provide feedback and correction
- 4 - Be fun and or create emotional involvement.

This can be seen in diagrammatic format in the table below.



Petty -2006

Vygotsky's Social Constructivism theory (1962) as quoted by Zheng (2012) suggests that knowledge construction is both a social and cognitive process whereby;

'Knowledge and meanings are actively and collaboratively constructed in a social context mediated by frequent social discourse for example creating a mind map as a paired or small group active communicating and discussing ideas'.

'In a social constructive learning environment, effective learning happens only through interactive processes of discussion, negotiation, and sharing'.

As mentioned previously, it is my intention to focus predominantly on the use of Visual Learning and Graphic Organisers within my own research and in particular, the use of mind maps. The effect size for using this type of intervention is high (1.2-1.3). Petty (2006) provides suggestions as to the rationale behind this. A selection of his points are detailed below.

- Diagrams cannot contain all the detail, so the learner is forced to isolate key points and their relations - this imposes structure
- Only structured information can go into long-term memory, so this helps recall
- Recall is almost always visually triggered, and the visual representation acts as a 'cue' triggering the full memory
- Visual learning is most effective when created by the student, reviewed by the group, and the 'best' versions selected and discussed
- The visual language is probably very close to the brain's 'natural' language, 'mentalese'.

This is also supported by (Bevan - 2006) who suggests that this can be linked to two main principles

- Students have a remarkable mental capacity for retention, recognition and recall when learning is associated with visual stimuli
- Meaningful learning occurs by anchoring new ideas or concepts with previously acquired knowledge in a non-arbitrary way, and the construction of the concept maps makes this process explicit

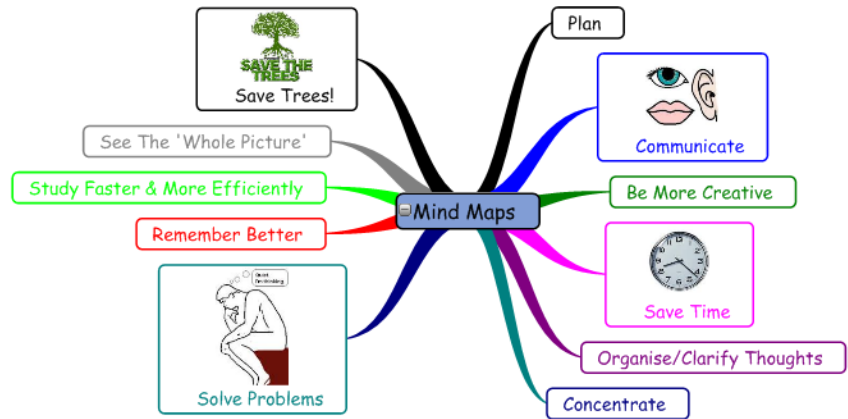
The work carried out by Tony Buzan (credited as being the founder of mind mapping) and Phil Chambers further explore the themes around mind mapping and the reasons why they work.

Buzan (2005) suggests that one of the main factor to consider is that mind maps work because they 'mirror' the way that the brain function and nerve cells or neuron connect to form memories and understanding - (neuroscience). These ideas are summarised in the bulleted list below and the supporting mind map graphic.

The mind mapping process helps to: -

- Activate your brain
- Clears your mind of clutter
- Allows you to focus on the subject

- Helps demonstrate connections between isolated pieces of information
- Gives a clear picture of both the details and the big picture
- Allows you to group and regroup concepts, encouraging comparison between them
- Requires you to concentrate on your subject, which aids the transfer of information from your short-term to long-term memory.



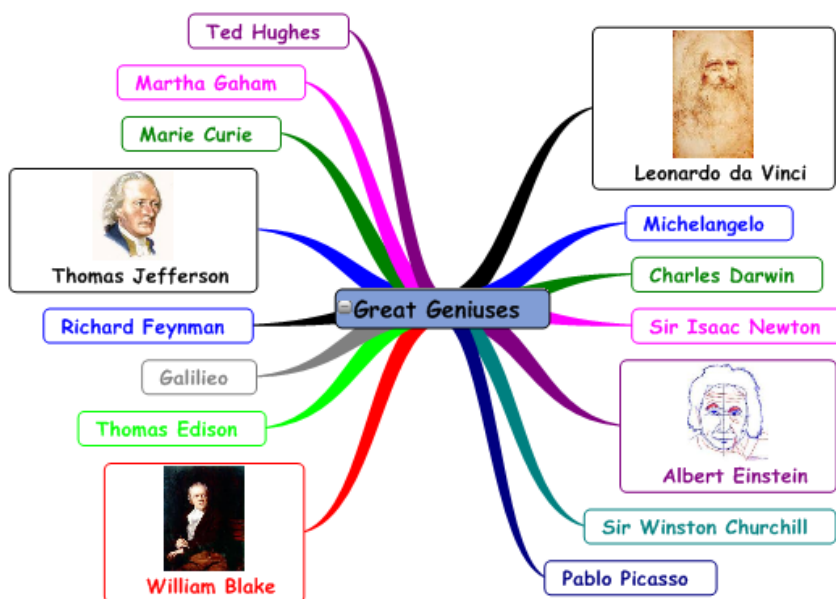
Buzan (2005)

Tips to create good mind maps include - Phil Chambers - March 2012 - Learning Technologies Newsletter

- Making the central image as attractive as possible
- Include colour, shading and perspective to make it look 3D. This will attract attention and make sure that focus remains on the central theme of the mind map. This will also promote creativity and memory with the addition of branches leading off from the main theme. (Chambers, 2012).

The Great Geniuses

Buzan (2005) also refers to the number of 'Great Geniuses' who actively used mind mapping techniques to document their research. These included Leonardo Da Vinci, Galileo Galilei and Albert Einstein amongst others - see mind map diagram below.



Leonardo Da Vinci for example is renowned for his use of symbols, images, diagrams and illustrations to capture his thoughts.

Galileo Galilei - documented his scientific thoughts and findings using visible illustrations and diagrams in comparison to his colleagues who used more traditional verbal and mathematic approaches to analyse scientific problems.

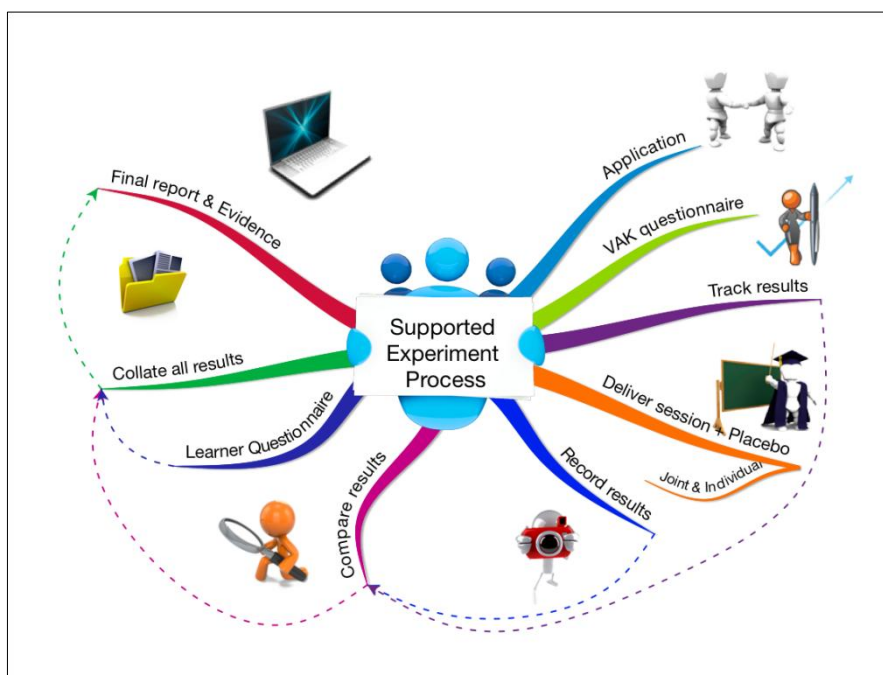
Drawing on history and on the strength of the research literature included within this review, I concluded that visual learning is a worthwhile topic to be further explored within the Adult Learning context.

Methodology

The overall aim of this research was to encourage tutors to acquire new skills and give them the opportunity to develop and use a wider range of visual learning techniques including Mind Mapping software in the classroom. As with our normal practice, progress was monitored in terms of achievement, satisfaction and retention. Ultimately all the results were compared to prior courses where more 'traditional' teaching methods had been used.

The overall research proposal was discussed and approved by senior management and a flyer, application and tracking documents were developed. The flyer was then circulated to DACES tutors to register expressions of interest. Tutors (Change Agents) who had already been allocated Netbooks with the MindGenius mind mapping software from previous funded projects were also contacted as they already had access to the resources. Applications were reviewed in line with DACES Equal Opportunity Procedure Guidelines (2012) and successful candidates advised.

Advisory meetings were set up and training provided if required, for example using the mind mapping software, if this was an element of their chosen experiment, or links provided to suitable Change Agent in line with the support required. Participants were also introduced to the concept of a 'Community of Practice' if this was not a concept they were familiar with. Each applicant was also allocated 6 hours development time to acquire new skills and conduct the experiment with their learners. (Although in reality it was evident that



6 hours development time would not be sufficient, it was felt that this allocation would allow more tutors to apply to the project).

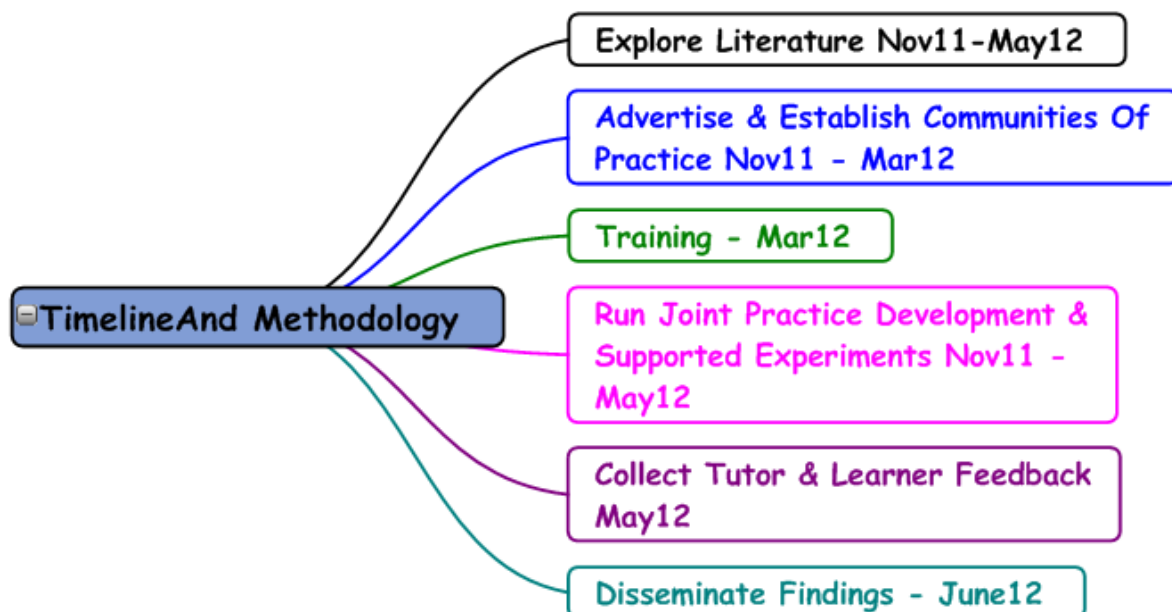
All participants were provided with clear guidelines as to what would be expected of both them and their learners during the project. This included guidance on conducting experiments, the nature of the data they would have to generate, advising their learners that a research project was taking place and that anonymity would be kept throughout. Participants were also provided with documentation to track their time, final report and Learner Questionnaire templates.

Where possible, tutors were also asked to run the sessions with learners working individually and then in pairs or small groups. Using this two pronged approach would then provide a comparison as to whether this type of learning is more effective individually (cognitive theory) or whilst working in groups (social constructive theory).

Copies of all documentation can be found in the appendix sections A-I.

Timeline and Methodology

The project was carried out between November 2011 and June 2012 with outcomes disseminated internally, locally and nationally in June 2012. A breakdown of the process carried out within this timeframe is detailed in the diagram below.



The Research Projects (Data summary and Analysis)

The table below provides an outline of the range of projects that took place during the research project. Due to time restraints and an unplanned Ofsted Inspection, not all the projects were completed in time for the final evidence to be included in this research paper but will be finalised and incorporated within other current projects being carried out in DACES.

Overview of experiments:-

Project Ref	Curriculum Area	No of Learners	Experiment
CB	Health & Wellbeing	3	Introduced the use of mind mapping techniques to learners on a Fitness Instructors course. Some elements of the course involve learners having to memorise complex lists of bone and muscle groups. Mind Mapping techniques were introduced to this group to find out if using visual graphics assisted this process.
JC	Teacher Training	9	Introduction to Assessment Methods. Learners were introduced to the concept of mind mapping. VAK questionnaires were provided for the group and the results recorded. Learners were split into three groups, two using traditional methods to document all aspects of assessment (post-its and A3 paper), the remaining group used the mind mapping software. Groups were later asked to compare results, discuss the methods used and their own original preferences including a reflection on their original preferred learning style.
DC	Health & Wellbeing	-	Tutor planned to use the mind mapping software to lead a group discussion around the issues of substance misuse highlighting substance type and impact of use. <i>Unfortunately, due to low numbers this course did not run. Created resources are being held for future delivery.</i>
CG	Modern Foreign Languages - Basic French	4	Tutor translated VAK questionnaire into French including graphics to re-enforce learner understanding. Results were documented prior to introducing the group to the concepts of mind mapping. Two scenarios were used in these experiments; activities according to time of day and family members/relationships. Colour coding was used throughout to aid understanding of group types. <i>Ideas were based around materials and information sourced by the tutor: - Collins Language Revolution - French: Complete pack (CD, book and audio) - Tony Buzan with Sophie Gavrois - 6 Aug 2009)</i>

CGA	Skills for Life - Dyslexia Dyspraxia	5	Tutor delivering to a Sfl group where some members of the class have dyslexia or dyspraxia issues. The tutors wanted to contrast and compare the traditional methods of paper based and reading against mind mapping to teach plural rules and for planning a short piece of writing.
CG L	Foreign Languages - Intermediate French	6	Introduction of the past tense of a specific group of verbs ('être' verbs) using a PowerPoint presentation to demonstrate gender/number agreements on past participles. Subsequent activity involved the learner group creating their own mind maps for 'avoir' verbs using the same format.
FG	Teacher Training	10+	Mind mapping software was used to produce an overview of the required criteria within each of the Learning Outcomes in the current PTLLS teacher training course with links showing where Learning Outcomes cross reference. The idea of this experiment was two-fold; initially for the tutor who is new to delivering the course and then ultimately for the learners in the Induction session as a means of demonstrating an overview of the qualification. <i>Our organisation will be moving from the existing PTLLS qualification to the updated award in September 12 so this experiment has been temporarily delayed until there is clarification from the awarding body regarding the new course criteria.</i>
LG	ICT	4	A mind map was developed to reflect the functions available in the 'ribbons' in the 2010 Microsoft Software ie Word, Access, Excel, Publisher and PowerPoint. The experiment initially focussed on 'Word'. The resources would aid colleagues/learners to understand the new software and where to find the relevant functions. <i>This is currently an ongoing project.</i>
TL	Skills for Life Kinaesthetic Learning	5	A Sfl Tutor delivered a session using both paper-based and mind mapping software to compare the benefits of using Mind Genius against the paper based traditional approach in terms of encouraging learners to plan work. Some learners in the Sfl area find this 'planning' a challenging concept.
LW	Skills for Life	5	Demonstrate that tutors can effectively use mind maps to help learners with dyslexia to plan tasks, remember facts and revise work. Experiments were carried out with a group of Entry Level Maths Learners looking at maths terminology, words and symbols associated with addition, subtraction, multiplication, division and equals. Terminology had previously been discussed but as several learners have dyslexic &/or mild/moderate learning difficulties they have continued to get the words mixed up or couldn't remember the meanings.

Findings: (predominantly phenomenological, observation, questionnaires, visual and verbal feedback)

10 tutors, Change Agents (Mentors, Subject Learning Coaches, e-Learning Champions) and Managers took part in the research projects.

The nature of all the projects were Supported Experiment focussed rather than Joint Practice Development (although JPD projects developed subsequently following the cascading process) and all opted to use technology within their projects to introduce the various themes. All learners were subsequently encouraged to produce their own versions of mind maps using paper, colouring pens, words and images to recreate and embed their understanding.

- The overall consensus was that the use of the mind maps had added to learner recall and understanding of key concepts
- There was initial resistance to 'drawing' by some adult learners as it was perceived to be 'childish', however once this barrier had been addressed, the learners enjoyed the opportunity to try something different
- Images and colour contributed and enabled learners to 'visualise and fix the subjects more clearly in their minds'.
- Activities promoted further discussions on alternative use of mind maps in 'everyday' learning and planning situations
- Studies that involved learners with dyslexia produced particularly positive results; - as research indicates that learners with these particular types of difficulties do not normally respond well to information presented in list form and prefer to see information presented pictorially, particularly if writing and spelling are issues
- Learners with dyslexia found using mind maps enabled them to increase the number of strategies to overcome areas of difficulty

Summary:

Once initial issues are overcome relating to learning and trying out new techniques, ideas and concepts, findings indicate that visual learning can positively influence learning and understanding.

Sample of Learner Feedback: -

'I found the colours and layout does improve my retention of the information on the subject'.

'On the whole, I find mind mapping very useful as I can usually "see" what I am trying to remember. Colour particularly helps as it "fixes" the subject more in my mind'.

'The mind map is easy to follow and see where I need to find out more'.

'I did a paper-based map first and then used mind genius. I preferred mind genius which was not what I had expected'.

Tutor/Learner - 'I have hand drawn a mindmap before when I was working with a group of Asians learners discussing diet and diabetes. This proved to be a very effective as English was a second language for the majority of the group and they would not have been able to read complex paragraphs, big words, but instead could see visually the main points'.

Extract from Tutor Summaries

'Learner feedback was good after initial resistance to 'drawing'. 'The second experiment was not as effective as the first mainly due to the complexity of the subject'.

'I have used 'spider graphs' previously and enjoyed using this technology. 'I have always found learning that involves using the eye gate as well as the ear gate is more effective and this technique relates to both auditory and visual learners' - trainee tutor.

'Only one of the SFL group was not happy with this new method of learning. He was the slower of the male pair and is noted as not being readily acceptable of any change in how he learns. However, with a little more probing, he had to admit that with more practice it could be beneficial to him'.

'They understood the concept of mind mapping very quickly and colour helped them to group words and symbols according to meaning. They said that they found it helpful because it is so visual. They all agreed that using different colours helped them to remember words, e.g. they all remembered that 'times', 'multiply', 'lots of' etc. were all blue. We also talked about how else we could use mind maps and how we could include pictures. Sam liked the idea of using pictures because she struggles with spelling and does not enjoy writing. When we played the games at the end of the session, they had remembered all of words that we had included on the mind map'.

'Tony is very IT literate and enjoyed exploring Mind Genius. Rather than being told how it works and what it does, he wanted to work it out for himself - his preferred learning style! He usually finds it hard to get his ideas down on paper, but found it much easier to do this with a mind map. He was able to expand his ideas and make links between them'.

'As a learner with dyslexia, he needs strategies to overcome his weaknesses and this checklist will help to do that. He also found, as a learner with dyslexia, that mind mapping suited his way of thinking - being able to see the bigger picture and organise his thoughts in a pictorial rather than linear way'.

Extract of tutor comments in terms of development and progression

'I will continue to use the technology with learners as I was aware that it facilitated planning more effectively for some learners than producing paper-based mind maps. The four learners who tried the software gave positive feedback and reported that they enjoyed using ICT in this way. In future I will also encourage the learners to use images when building the mindmaps'.

'I shall continue to use the mind maps as part of my resources for all classes. I take on board where some of the learners may not be too sure of this means of learning, but to some extent I believe that it is because it is not a 'traditional method' and therefore moves them out of their comfort zone. However, using it more often, but certainly evaluating carefully when to employ it, should result in further acceptance. As said earlier, some people do not like change now and some (perhaps older learners) have learnt traditionally for many years and find it harder to accept another method. However, then there are those of all ages who suddenly find that there is a new, more exciting and appropriate way of learning and retaining knowledge'.

'A big success! If the technology is available I will use MindGenius, but the low-tech (paper based) version is also an effective teaching and learning tool. I always recommend mind mapping for learners with dyslexia, but really everybody should be doing it!'

'I will continue to use MindGenius and get to know it better. I shall also campaign for more IT for Skills for Life tutors. There is a need for more interactive whiteboards (not just in the IT room) and more computers or laptops that are readily accessible. Some tutors that I have spoken to have said that they would like to use IT more in their teaching but they find it either unavailable or unreliable when available. The benefits of mind mapping could be demonstrated at team meetings, skills workshops etc.as it is important to share ideas with other tutors'.

'I intend to develop a mindmap for each element of the languages course I deliver and share it with colleagues'.

The original focus of the project was to use more measurable indicators to monitor the project: - refer to bulleted text below.

- Hard Impact Indicators
 - OTL Grades
 - Retention/Achievement/Success Rates
 - Learner Evaluation
 - Learner Work
- Soft Impact Indicators
 - Increased tutor confidence/autonomy
 - Increased learner confidence/autonomy
 - Increased learner involvement in T&L methodology
 - Increased use of visual/mindmapping technologies/techniques in the classroom

Hard impact indicators:

Although we are not fully able to evaluate these aspects in terms of OTL Grades and success rates, the learner evaluation and feedback to date provides a really positive indication.

Soft impact indicators:

Three of the above indicators have been met and sufficient evidence provided to recommend that further research experimentation should take place in terms of mind mapping work in the classroom.

Validity and Reliability of Data -

With reference to the intended methodology for this research, I did suggest that where possible, participants should endeavour to take a scientific approach with their experiments by having both a control and experimental group, and by looking at individual learning in comparison with group work. Due to the time scale of the project and the number of participant/ learners involved this did not occur in the majority of the experiments. This is something that could be addressed if the scope of the research were increased.

An additional viewpoint that would need to be considered is, if learners know or become aware that they are participating in a research project, there would be a marked improvement naturally as there would be an expectation of higher achievement results and learning would be more focussed. Hattie (1998) refers to this as the 'Hawthorne' effect. This research goes some way to addressing this issue in terms of the variety of the curriculum areas involved; e.g. languages, health and literacy with positive feedback from across the spectrum.

Some experiments are still on-going and therefore data from these is not included.

Recommendations

- Widen the scope of future research experiments
- Ensure tutors spend sufficient time preparing learners as to what will be expected of them. This will help toward addressing any initial resistances to change and 'trying something new' if they have some understand of how they learn
- Further investment into visual learning software
- Continue to apply for funding to support further CPD development
- Cascade the use of visual learning techniques to wider courses/curriculum areas
- Ensure that T&L remains high on DACES priority
- Involve those tutors who have actively participated in this and similar funded projects to cascade knowledge/skills to colleagues
- Expand the current 'Change Agent' team

Dissemination Strategies -

Findings from the research will take various formats:-

An overview of the project will be shared with members of DACES Learning and Teaching Improvement Group (LTIG) at the first available opportunity with the recommendation that this type of CPD should be expanded to other curriculum areas and via local networks.

The process of Communities of Practice, Supported Experiments and Joint Practice Development to support CPD will be embedded in the curriculum and financially supported initially by an additional LSIS funded project (RITLF - Regional Innovation Teaching and Learning Fund) and then any additional funded projects.

A celebration event will be planned to share the findings both from this and other LSIS funded projects. Tutors involved in the projects to date will be recognised and invited to share their experiences with colleagues to further embed the ethos of professional support and development.

The Research paper, findings, presentation and academic poster will be made available on DACES Moodle Learning platform for managers, tutors and learners to access. All materials will also be made available to share via local networks.

Attendance at the LSIS Research Conference in London - June 12 to deliver a presentation and showcase a poster documenting the process and findings of the research.

Submission of an academic paper to the University of Sunderland to document the process and overall conclusions.

Next Steps

DACES have been successful in a recent LSIS bid and now have a further £5,000 of funding to continue to run Supported Experiments and Joint Practice Development projects linked with visual learning and other technologies.

DACES will continue to pursue projects of this nature as the main CPD method as opposed to the previous staff development cascade model.

DACES will continue to put Teaching & Learning at the heart of future development.

Apply for additional funding to review costing options for mind mapping software (e.g. MindGenius &/ Imap), prior to recommending further investment and experimentation in visual learning software

Expand the current 'Change Agent' team within DACES so that we are able to provide a wider support network for tutors across the curriculum.

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Appendices

- Appendix A - Visual Learning Opportunities Flyer
- Appendix B - VRDF 1 - Timesheet Record
- Appendix C - VRDF2 - Application and Feedback Record
- Appendix D - Example of a completed application and report
- Appendix E - Sample Mindmaps - French Beginners Class
- Appendix F - VAK Learning Style Questionnaire (Bandler & Grindler)
- Appendix G - Visual Learning Feedback Form
- Appendix H - Academic Poster produced for the LSIS Research Conference - London June 12
- Appendix I - Final Presentation Slides - LSIS Research Conference - London June 12

Derbyshire
County
Council

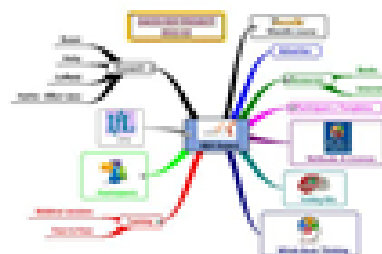
Children and
Younger Adults
Department



Visual Learning CPD Opportunities for Tutors 11-12 Earn while you learn!

Visual Learning - Would you like to try using a visual technique to enhance T&L but have not had the time?

Research indicates that the use of mind maps and visual techniques has a beneficial impact on learning and retention.



We have funding to support you to develop and trial a new visual technique in the classroom. We can provide you with resources and link you with an ILT Champion/Mentor/SLC to work with you.

This development activity will help you complete your annual CPD hours whilst earning, learning and having fun.

If you are interested in knowing more please email: or call - 01629-535694

maureen.frazer@derbyshire.gov.uk

Appendix B - VRDF 1 - Timesheet Record

VRDF 1



Derbyshire Adult Community Education Service Research Development Fellowship - Visual Supported Experiment Record

Name :

Please complete the record below and submit with your pay claim for the agreed hours to Maureen Frazer, Derbyshire Adult Community Education Services, Chatsworth Hall, Room 007, Block C, Chesterfield Road, Matlock, DE4 3FW

Agreed number of hours: <input type="text"/>	
Date	Activity

VRDF 3



**Derbyshire Adult Community Education Service
Research Development Fellowship - Visual Supported Experiment
Record**

Name:

Please complete the record below and submit to: Maureen Frazer, Derbyshire Adult Community Education Services, Chatsworth Hall, Room 007, Block C, Chesterfield Road, Matlock, DE4 3FW



Application	Title of visual experiment project
	Issue Identified
	What I want to achieve
	What it will cost (time ; resources; support)
MF	Agreement to run experiment
Planning	CoP feedback
	Learners etc briefed
Experiment	The experiment - what I did
	The experiment - how it went
	The experiment- any handouts etc produced
Reflection	Theory that supports the experiment
	How my teaching practice has improved
	Share success (or failure)
	How will I use this learning to further improve my practice - What next?

VRDF 3



**Derbyshire Adult Community Education Service
Research Development Fellowship – Visual Supported Experiment
Record**

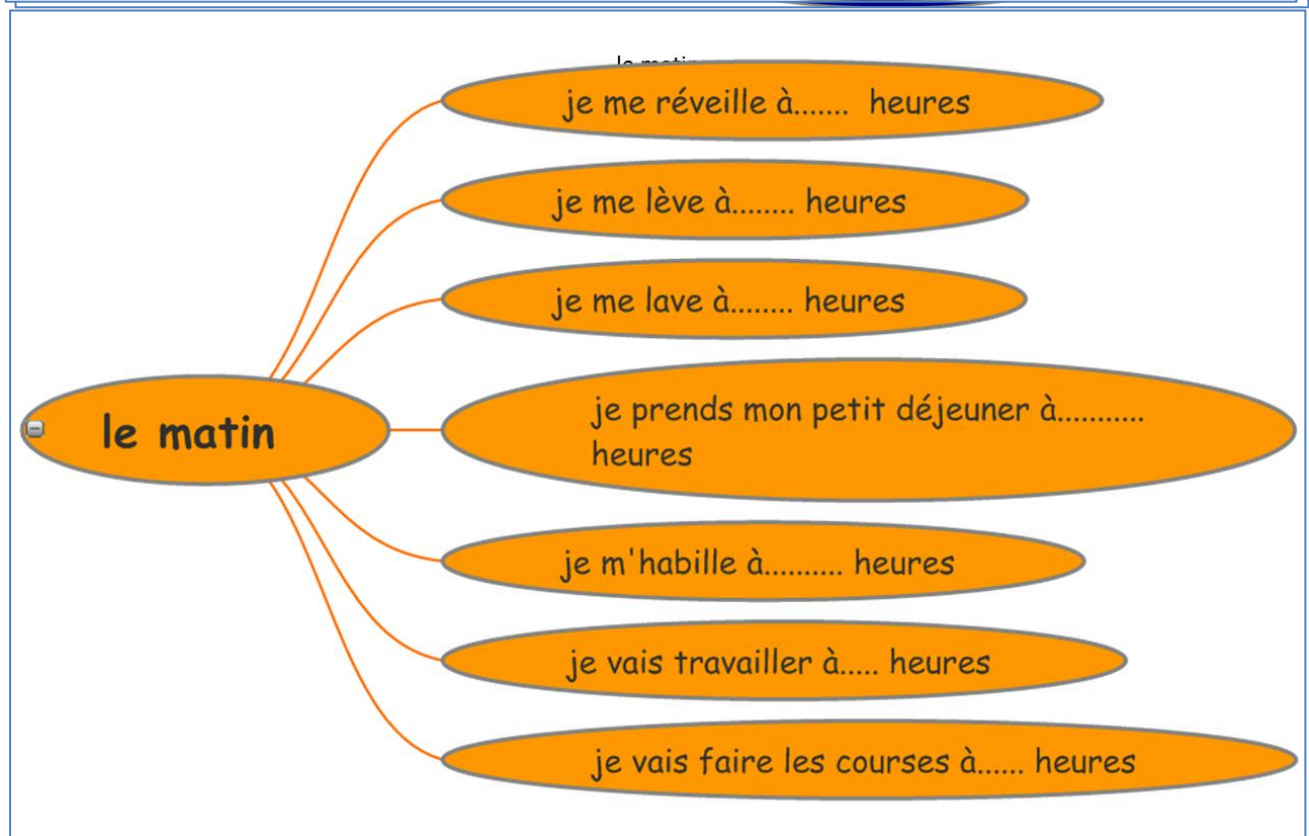
Name:	
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Please complete the record below and submit to: Maureen Frazer, Derbyshire |
Adult Community Education Services, Chatsworth Hall, Room 007, Block C,
Chesterfield Road, Matlock, DE4 3FW

Application	Title of visual experiment project
	Use of mind genius to support visual learning
	Issue Identified
	Planning work - Some learners find planning work challenging. I would like to examine the benefits of using mind genius to encourage learners to plan their work. Some learners will use paper based planning and others make use of the mind genius software.
	What I want to achieve
	I hope that learners will have a better understanding of the need to plan and how to approach it.
	What it will cost (time; resources; support)
	I have a net book with the software loaded. I will cover planning with all of my groups and this will form an integral part of this work.
MF	Agreement to run experiment
Planning	CoP feedback
	Learners etc briefed
	The experiment was explained to learners who agreed to be part of the experiment. Mind genius was demonstrated to introduce the software.
Experiment	The experiment - what I did
	I asked some learners to develop a mind map on paper researching their chosen Olympic sport or other given subject and four learners used the mind genius software to mind map their findings.
	The experiment - how it went
	One learner created a paper based mind map and also a mind genius version.

	Once the learners using the software began to feel comfortable using it, it was very effective. All learners who created either paper based or mind genius mind maps found it useful.
	The experiment- any handouts etc produced
	Examples of mind genius mind maps attached.
Reflection	Theory that supports the experiment
	A number of learners within my Skills for Life classes have dyslexia and benefit from a visual approach to learning.
	How my teaching practice has improved
	I found it helpful to integrate ICT skills into the literacy environment and I found it encouraged learners to approach the planning in a structured manner. All learners benefited from using mind maps to plan their piece of writing.
	Share success (or failure)
	The feedback was positive and learners who had little previous experience of using ICT found it interesting and enjoyable. Comments included, 'the mind map is easy to follow and see where I need to find out more'. The only area that was challenging was only having the software on a netbook; some learners have difficulty with small fonts and when they developed detailed mind maps it would have been easier for them to have had the opportunity to use a full size PC. The learner who did a paper based mind map and used mind genius found he preferred mind <u>genius</u> , this was the opposite of what he expected.
	How will I use this learning to further improve my practice - What next?
	I will continue to use the technology with learners as I was aware that it facilitated planning more effectively for some learners than producing paper based mind maps. The four learners who tried the software gave positive feedback and reported that they enjoyed using ICT in this way. As this was done on a one to one basis, we did not exploit the software fully; with more time I will encourage learners to use images when building the mind maps.

Appendix E - Sample Mind Maps - French Beginners Class



Bandler & Grindler VAK Learning Styles

	Visual	Auditory	Kinesthetic / Tactile / Physical
Operate new equipment	Read instructions	Listen to explanation	Have a go
Travel directions	Look at map	Listen to explanation	Follow your nose and maybe use a compass
Cook a new dish	Follow a recipe	Call a friend for explanation	Follow your instinct tasting as you cook
Teach someone something	Write instructions	Explain verbally	Demonstrate and let them have a go
You'd say..	Show me	Tell me	I know how you feel
You'd say..	Watch how I do it	Listen to me explain	You have a go
Faulty goods	Write a letter	Phone	Send or take it back to store
Leisure	Museums and galleries	Music and conversation	Playing sport or DIY
Buying gifts	Books	Music	Tools and gadgets
Shopping	Look and imagine	Discuss with shop staff	Try on and test
Choose a holiday	Read the brochures	Listen to recommendations	Imagine the experience
Choose a new car	Read the reviews	Discuss with friends	Test-drive what you fancy
Total indicates preferred learning style(s)			

Please let your tutor know your results.

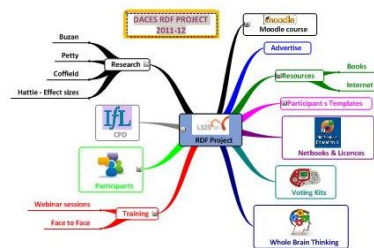
You can use this grid as a simple learning style indicator questionnaire – for example score each box out of five or ten and then total each column e.g 'Operate new equipment' Visual 3, Auditory 3 and Kinaesthetic 4 (total 10 per row). The totals will indicate your relative learning style preference. Remember there are no right or wrong answers. Read more about multiple intelligences and VAK at:

<http://www.businessballs.com/howardgardnermultipleintelligences.htm>



Appendix G - Visual Learning Feedback Form

wVisual Learning Feedback Form



Thank you for participating in our visual learning project.

As you will know your tutor has been taking part in a research project looking at how visual learning can impact on memory recall. I hope you enjoyed learning using these techniques and would just like to ask you to complete this short feedback form. (Please tick your selection or select the appropriate image).

Your response will be anonymous and the information collected will be used to provide an overview of the findings. The study is being supported by LSIS (Learning and Skills Improvement Service).

Your feedback and comments are very important.

<ul style="list-style-type: none"> What is your gender? 		
Female	Male	Other

<ul style="list-style-type: none"> Which of the following categories most accurately represents your age? 		
16-19 ☺	20-29 ☺	30-39 ☺
40-49 ☺	50-59 ☺	60-69 ☺

<ul style="list-style-type: none"> Do you consider yourself to have any sort of disability (includes dyslexia/dyspraxia) 		
Registered disabled ☺	Unregistered disability ☺	No disability ☺

<ul style="list-style-type: none"> What subject are you learning? (e.g. Language/ICT/Teacher Training/SfL) please write in the box below

<ul style="list-style-type: none"> Prior to using this visual learning technique which of the following would you say was your preferred learning style:? (Bandler & Grindler VAK Learning Styles refers) 		

<ul style="list-style-type: none"> Have you used any similar visual learning techniques before? 		
Frequently ☺	Occasionally ☺	Never ☺

If so please comment on your prior experience in the box below.

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• Did you carry out this learning as an individual/paired/group activity?

Individual ☺	Paired ☺	Group ☺
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• Would you have preferred to do this differently i.e. individual/paired/group?

Yes ☺	No ☺	Didn't mind ☺
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• By using this technique do you think it increased your level of learning and recall?

Yes ☺	No ☺	Not sure ☺
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• Please explain in the box provided below

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• Would you like to use this/similar learning techniques in future sessions?

Yes ☺	No ☺	Not sure ☺
-------	------	------------

• Looking back at your earlier VAK preference, and having now carried out some visual learning techniques, would you still agree with your earlier response?

Yes ☺	No ☺	Not sure ☺
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• Please add any further comments in the box below.


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Thank you for completing this form. Your feedback is appreciated.



Many thanks - Maureen Frazer (E-Learning/ITT & CPD Programme Manager).

Appendix H - Academic Poster produced for the research conference in London - June 12






DERBYSHIRE
County Council
Improving life for local people

‘Impact of Visual Learning’

(Action Research in Adult Community Learning)



Maureen Frazer
Derbyshire Adult Community Education Service

1 - Introduction

A Picture is Worth A Thousand Words

This research illustrates how Derbyshire Adult Community Education Service (DACES) tutors were given the opportunity to take part in Joint Practice Development and Supported Experiment opportunities using the theme of visual learning and how participation in these projects impacted on their own practice, CPD and on DACES learners.

DACES has experienced a major restructure and is facing significant challenges with ‘Changing the way Derbyshire Works’ (COWW) and the general usability measures in the education sector. The organisation is constantly looking for efficiencies whilst striving to maintain and improve the quality of its teaching provision. The research was carried out in its setting.

2 - Research Methods

The principal methodology was action research using Supported Experiments (SE) and Joint Practice Development (JPD).

Research ethics: all participants were aware that research was taking place and knew that their involvement and feedback would be requested. The final paper will protect participants anonymity and confidentiality.

DACES Research Process was to:

- Explore the literature around the use of JPD, concept mapping, visual representation, and the effect on learners.
- Set up a community of practice (CoP) from DACES tutors, managers and professional peers.
- Set up training on the use of visual methodologies and provide an overview of JPD & SE.
- Engage the CoP in running Supported Experiments – with appropriate support.
- Collect tutor and learner feedback on the Supported Experiments, write a report and disseminate the findings.

3 - Key Literature

Buzan, T (2002). *The Ultimate book of mind maps* - Thorsons

Colefield, R (2004). *Just suppose teaching and learning became the first priority* - LSN

Colefield, R (2010). *Yes, but what has Semmelweis to do with my professional development as a tutor* - LSN

Felding, M et al (2002) *Factors influencing the transfer of good practice*. Oxf. DfES

Hate, J (1999) *Influences on Adult Learning* Inaugural Professorial address, University of Auckland, New Zealand

Perry, G (2009) *Evidence Based Teaching* Nelson Thomas

Website:
www.indigenias.com - www.thinkbuzan.com
www.learning-tech.co.uk/
Multimedia Learning - www.excellenceready.org.uk

8 - Dissemination

- DACES Celebration Event
- DACES Practitioner support networks and PRD groups (E-Learning PRD group, E-ITTC, E-ITT)
- The research report and all supporting materials will be accessible to tutors, managers and learners via DACES Moodle Learning Platform
- The research report will be made available and shared in the local and wider community.

7 - Next Steps

DACES have been successful in receiving funding and now have a further £2000 of funding to continue to run Supported Experiments and Joint Practice Development projects linked with visual learning and other technologies.

DACES will continue to pursue projects of this nature as the main CPD method as opposed to the previous staff development cascade model.


DACES will continue to put T&L at the heart of future development.

6 - Recommendations

- Further investment in visual learning software (e.g. MindGenius & / or / Imago)
- Continue with future applications for funding to support further CPD development
- Cascade the use of visual learning techniques to a wider selection of course/tutorial areas
- Ensure that T&L remains high on DACES priorities
- Involve those tutors who have actively participated in this and similar funded projects to cascade their knowledge/skills to colleagues
- Expand the current ‘Change agent’ team

5 - Findings

- The overall consensus was that the use of the mind maps had added to learner recall and understanding of key concepts.
- Images and colour contributed and enabled learners to visualise and fix the subjects more clearly in their minds.
- Activities led to discussion on further use of mind maps in ‘everyday’ learning and planning situations.
- Studies that involved learners with dyslexia produced particularly positive results - as research indicates that learners with these particular types of difficulties do in or normally respond well to information presented in list form and prefer to see information presented graphically, particular if writing and spelling are issues.
- Learners with dyslexia found using mind maps enabled them to increase the number of strategies to overcome areas of difficulty.
- Once initial issues are overcome relating to learning the new techniques and software, findings indicate that visual learning can positively influence learning and understanding.



4 - The Projects

Data method was predominantly phenomenological with goals, narratives, questions, visual and verbal feedback.

10 tutors, Change Agents (Mentors, Subject Learning Coaches, e-Learning Champions) and Managers took part in the research projects.

Of the 10 supported experiments, all opted to introduce technology to improve their practice (the books, projects and the MindGenius or Imago software). After mind maps had been introduced to the learners, they were then encouraged to use diagrams, colouring pens, words and images to recreate their own mindmaps and embed their learning and understanding.

A selection of experiments:-

- SE - 3 fitness tutor using mind maps to make a visual representation of links between nutrition on the range of class menu options
- SE - 1n IT tutor using mind maps to make a visual representation of links between the range of class menu options
- SE - 3 tutor in producing mind maps to help learners with dyslexia plan their memo writing and relate work
- SE - 3 tutor teaching basic French teaching from jargon, using jargon as the main activity
- SE - 1n IT tutor creating mind maps to represent the content of ITB and / or / Office 2010 software.

For further information contact Maureen Frazer - email: maureen.frazer@derbyshire.gov.uk

Copies available on request.

Derbyshire County Council
Children and Younger Adults Department

Derbyshire County Council
improving life for all

LSIS

Impact of Visual Learning

(Action Research in Adult Community Learning)

'A Picture Is Worth A Thousand Words'

Maureen Frazer and Vikki Trace
Derbyshire Adult Community Education Service

maureen.frazer@derbyshire.gov.uk
vikki.trace@derbyshire.gov.uk

Derbyshire County Council
Children and Younger Adults Department

Background

- Largest provider of part-time adult learning within Derbyshire
- Approx 2,600 courses with over 28,910 enrolments across 15 SSA to include Family Learning and Foundation Learning
- 60% of enrolments are on accredited courses
- 23 main centres – 100+ outreach venues
- 400+ part-time tutors
- Major restructure
- CWDW (Changing the Way Derbyshire Works)



Research Methods

- Our main research process was an action research project using supported experiments and joint practice development on the theme of visual learning
- Research ethics: all the people involved were aware that a supported experiment was taking place and knew that their involvement and feedback would be requested. The final paper protects participants anonymity and confidentiality



The Process

- Explore the literature around communities of practice, joint practice development, supported experiments, and influences on learners learning.
- Set up a community of practice (CoP) from DACES tutors, managers; and professional peers
- Share the supported experiment concept with the CoP
- Gain support and commitment from tutors to join the CoP
- Engage the CoP in running supported experiments – with appropriate support
- Collect tutor and learner feedback on the supported experiments
- Disseminate the outcomes of the supported experiments throughout DACES and the wider research community




Key Literature

- Buzan, T (2005). *The Ultimate book of mind maps* - Thorsons
- Coffield, F (2008). *Just suppose teaching and learning became the first priority* – LSN
- Coffield, F (2010). *Yes, but what has Semmelweis to do with my professional development as a tutor* – LSN
- Fielding M et al (2005) *Factors influencing the transfer of good practice*. Dfes/DMOS
- Hattie JA (1999) *Influences on Student Learning* Inaugural Professorial Address, University of Auckland, New Zealand
- Petty G (2008) *Evidence Based Teaching!* Nelson Thornes



Data Collection & Analysis

- Data method was predominantly phenomenological using observations, questionnaires, visual and verbal feedback.
- 10 tutors, Change Agents (Mentors, Subject Learning Coaches, e-Learning Champions) and Managers took part in the research projects.
- Of the 10 supported experiments, all opted to introduce technology* to improve their practice (*netbooks, projectors and the MindGenius or Imap software).

<p>Derbyshire County Council Children and Young Adults Department</p> 	<h2>Findings</h2>
	<ul style="list-style-type: none"> • The overall consensus was that the use of the mind maps had added to learner recall and understanding of key concepts • Images and colour contributed and enabled learners to 'visualise and fix the subjects more clearly in their minds'. • Activities led to discussions on further use of mind maps in 'everyday' learning and planning situations • Studies that involved learners with dyslexia produced particularly positive results; - as research indicates that learners with these particular types of difficulties do not normally respond well to information presented in list form and prefer to see information presented pictorially, particular if writing and spelling are issues. • Learners with dyslexia found using mind maps enabled them to increase the number of strategies to overcome areas of difficulty

<p>Derbyshire County Council Children and Young Adults Department</p> 	<h2>Impact of the Research</h2>
	<p>Learners</p> <ul style="list-style-type: none"> • Increased understanding of key concepts • Increased results in learner achievement • Increase in Learner autonomy • Increased learner involvement in teaching and learning methodology <p>Tutors</p> <ul style="list-style-type: none"> • Increase in tutor's use and confidence in using technology within their delivery • Broader range of CPD activities <p>Teaching & Learning</p> <ul style="list-style-type: none"> • Widening participation and increased measures to meet learner needs (EDI) • Personalised CPD is effective



Recommendations


- Further investment in visual learning software (e.g. MindGenius & Imap)
- Continue with future applications for funding to support further CPD development
- Cascade the use of visual learning techniques to a wider selection of courses/curriculum areas
- Ensure that T&L remains high on DACES priorities
- Involve those tutors who have actively participated in this and similar funded projects to cascade knowledge/skills to colleagues
- Expand the current 'Change Agent' team



Next Steps


- DACES have been successful in a recent LSIS bid and now have a further £5,000 of funding to continue to run Supported Experiments and Joint Practice Development projects linked with visual learning and other technologies.
- DACES will continue to pursue projects of this nature as the main CPD method as opposed to the previous staff development cascade model.
- DACES will continue to put T&L at the heart of future development.

**Derbyshire
County Council**
Children and Younger
Adults Department




Dissemination

- DACES Celebration Event
- DACES Practitioner support networks and PRD groups (EM ACL PRD group, EMFEC, EMCETT)
- The research report and all supporting materials will be accessible to tutors, managers and learners via DACES Moodle Learning Platform
- The research report will be made available and shared with the local and wider community




'Impact of Visual Learning'

(Action Research in Adult Community Learning)



Maureen Frazer
Derbyshire Adult Community Education Service

<p>1. Introduction</p> <p>LPCEA's Vision & Strategic Vision</p> <p>The vision of the Local Partnership for Children and Younger Adults (LPCEA) is to ensure that all children and young people in Derbyshire have the opportunity to reach their full potential and to be successful in their lives. The vision of the Local Partnership for Children and Younger Adults (LPCEA) is to ensure that all children and young people in Derbyshire have the opportunity to reach their full potential and to be successful in their lives.</p>	<p>2. Research Brief</p> <p>The research brief was developed to explore the impact of visual learning techniques on tutors and learners in adult community learning. The research was conducted over a period of 12 months and involved a range of stakeholders including tutors, learners, and managers. The research was conducted over a period of 12 months and involved a range of stakeholders including tutors, learners, and managers.</p>	<p>3. Dissemination</p> <p>The research findings will be disseminated through a range of channels including a celebration event, practitioner support networks, and the DACES Moodle Learning Platform. The research findings will be disseminated through a range of channels including a celebration event, practitioner support networks, and the DACES Moodle Learning Platform.</p>
<p>4. Key Findings</p> <p>The research findings indicate that visual learning techniques have a positive impact on both tutors and learners. Tutors reported that they were able to engage learners more effectively and that learners were able to retain information for longer periods of time. The research findings indicate that visual learning techniques have a positive impact on both tutors and learners.</p>	<div style="text-align: center;">  </div> <p>4. Findings</p> <p>The research findings indicate that visual learning techniques have a positive impact on both tutors and learners. Tutors reported that they were able to engage learners more effectively and that learners were able to retain information for longer periods of time. The research findings indicate that visual learning techniques have a positive impact on both tutors and learners.</p>	<p>5. Recommendations</p> <p>Based on the research findings, it is recommended that visual learning techniques be used more widely in adult community learning. This could be achieved through the development of training materials and the provision of ongoing support to tutors and learners. Based on the research findings, it is recommended that visual learning techniques be used more widely in adult community learning.</p>