

BEDFORD ROW FAMILY PROJECT

FAMILY SUPPORT AND CRISIS INTERVENTION COURSE,

FINAL REPORT

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1. INTRODUCTION

I was contacted by Project Leader, Bedford Row Family Project, Larry de Cléir in December 2012 and asked if I would bring my experience as a neuroscientist and educator - I am currently Professor of Physiology at the Graduate Entry Medical School, UL - to an evaluation of the above Course particularly in the context of how the brain develops and how neuroscience might be applied and/or be relevant going forward.

Furthermore, as there is enthusiasm to build on the Course it was felt that an independent evaluation would be of benefit both for both professional standards and sustainability.

A site visit to Bedford Row followed in February 2013 where I was introduced to the members of the education team and also spent a session with the students where topics of concern were discussed particularly in relation to Attention Deficit Hyperactive Disorder, in the context of how the brain works. (Many prisoners, and children affected by imprisonment are thought to be affected by ADHD to a lesser or greater extent).

As a result of this meeting I posted a series of blogs on ADHD which can be viewed on the [inside the brain](#) website which reports on the latest from the world of brain research.

This was followed up by email and telephone discussions on how best to proceed.

TERMS OF REFERENCE

This report aims to provide options that will ensure that families in distress can acquire the knowledge they need to thrive. I met with Larry de Cléir between February and mid-May 2013 to prepare the report.

The terms of reference were:

1. Identify state-of-the-art understanding of how people acquire knowledge throughout life, in the context of the rapidly developing knowledge base.
2. Identify potential barriers to knowledge acquisition, including environmental factors, and outline the supporting published evidence.
3. Evaluate the methodology deployed in Bedford Row based on an analysis of a recent evaluation to determine the most effective approaches to the acquisition of knowledge.
4. Formulate options that could have a positive impact on the acquisition of knowledge for families in distress.
5. Document the relative contributions of fundamental and applied published research to the Bedford Row initiative and make recommendations.

Further relevant details are outlined in the accompanying appendices, as described below:

Appendix A: Questions and rationale.

Appendix B: Itemised feedback from the questionnaire.

Appendix C: 23 factors that influence learning.

Appendix D: From theory to practice. Creating an optimal learning environment in Bedford Row.

Appendix E: References

OVERVIEW

The Bedford Row Family Support and Crisis Intervention Course had as its aim the up-skilling of families in distress due to involvement in serious crime and imprisonment. The overarching goal of the Course can be summarised in one word – empowerment. This is achieved through the design of a tailored curriculum delivered in an environment optimal for brain learning. In this regard, positive emotions including excitement, inspiration and compassion are woven into the Course. The idea is to impart both the practical knowledge and the emotional intelligence required for effective parenting to distressed parents that will not attend/are not ready for such supports as parenting courses etc.

The challenges are formidable and deep-rooted. A high level of anxiety is frequently the norm in many such families¹ with many of the participants on the Course (though not all) raised in unstable/fearful home and/or local community environments and also reporting anxiety in formal learning/educational settings. The inappropriate expression of difficult emotions, in particular anger and fear was also an issue.

Working with the now well established evidence that *fear kills learning*, the Course encourages creativity by fostering an emotional climate which is optimal for brain learning. (See Appendix D for further discussion of ‘optimal learning environment’ with relevance to the Course)

Learning disorders such as dyscalculia (math difficulty), dyslexia, dysgraphia, specific language development disability and attention deficit hyperactivity disorder (ADHD) are also present in some families affected by imprisonment. School drop-out is a significant determinant in involvement in anti-social behaviour, crime ultimately imprisonment so this is important.

Recent neuroscience research suggests that these learning disorders can be best understood and treated as disorders in certain brain circuits and emphasise the importance of early detection usually by the parents, followed by intensive one-on-one remediation focused on re-wiring specific nerve circuits within regions in the brain.

Arranging the timetable to ensure maximum participation is another challenge as the students are part-time and have many competing work/ family priorities.

2. THE BRAIN SCIENCE OF LEARNING

The brain science of learning tells us that many factors can affect an individual’s capacity and motivation for learning. These include the social and cultural views of learning in family and community. The Bedford Row initiative creates a culture supporting the value of learning thereby increasing individual motivation for learning, and enhancing each person’s capacity for attaining and retaining knowledge.

Significant advances have recently been made in our understanding of the psychology of learning, as well as the neuroscience underpinning the mechanisms for learning. Improved understanding of how people learn can be used to optimise learning environments and methods, maximising the transmission of knowledge. In addition, understanding the brain’s management of new challenges will help inform the teaching of problem solving skills. This will be crucial to support families in distress as they face increasingly complex challenges in the future.

¹ *Voices Of Families Affected By Imprisonment*, Chapter 3, Bedford Row Family Project, Limerick, 2008.

THE NEURONAL LEVEL

Neuroscientists see learning as a process of strengthening and weakening connections between sets of neurons within the brain. This results in a distinct ensemble of neurons more likely to be activated by exposure to identical or similar sensory input. This enhanced tendency towards coordinated activation can be 'stored' for various lengths of time. Replaying events during sleep or rest can strengthen this memory.

MIRROR NEURONS

We are beginning to understand the neuronal basis of how the learning of motor skills and other observable behaviours may be facilitated by observation of others. Recent studies show that when observing the action of another, an ensemble of neurons is activated in the observer (Gallese et al, 1996). The ensemble includes the same population of neurons that would be used if the observer were to carry out the observed action, and are called mirror neurons. The activity of mirror neurons reflects the observer's recognition of the intent of the action (Fabbri-Destro et al, 2009). They may constitute a vital system used by humans to understand other humans' intentions. It is thought that a defect in this system may underlie autism spectrum disorders. Importantly, it may be a central mechanism that allows the transfer of information in educational and non-educational settings.

WHAT IS LEARNING?

From an information processing perspective, learning is the process of 'acquiring new information', with information stored in long-term memory for later retrieval as the outcome of learning (Gazzaniga et al, 2009). Information processing theories of learning have identified three major steps:

1. encoding: processing of incoming information for storage;
2. storage: a permanent record of encoded information in long-term memory. Here psychologists distinguish two broad types of memory, one that stores factual and autobiographical information (declarative memory), and one that stores a range of different types of knowledge including motor and procedural skills, habits, and conditioned responses (non-declarative memory); and
3. retrieval: information stored in long-term memory is activated to generate a representation or to produce a learned behaviour.

Declarative and non-declarative memory work in concert to determine what we learn, how we learn it, and how we feel about the learning process. Declarative memory refers primarily to what we learn; non-declarative memory refers primarily to how we learn and how we feel about the learning process. When informal learning conflict with formal learning goals, learning is likely to be less effective.

Strategies that enhance the efficiency of working memory include:

1. chunking information, that is linking several items of information with knowledge already stored in long-term memory;
2. the use of metacognition, our understanding of how we learn, to enhance the efficiency of working memory; and
3. repetition of procedures until they become automated, and make fewer demands on memory resources (Gupt and Cohen, 2002).

These basic facts about the cognitive architecture of humans have important and widespread implications for the design of curricula, the structure of learning environments and teaching practices (Sweller, 1988; van Merriënboer and Sweller, 2005). Curricular designs that carefully build on existing knowledge, and reinforce that knowledge through repetition,

serve to maximise the effectiveness of working memory and encoding. This frees working memory resources so they can be used for other purposes, such as the deep elaboration that leads to insight and the gaining of deep knowledge.

DEEP KNOWLEDGE

The gaining of deep knowledge can be enhanced by analysing what we are learning while we are learning. This is known as deliberate practice and involves evaluating progress, responding to feedback, and predicting and planning subsequent performance. Studies of differences between experts and novices across a range of fields have revealed that the amount and diversity of deliberate practice is the most important determinant for expert levels of performance (Ericsson et al, 1993; Wood et al, 2009). Training in deliberative processing skills and other encoding strategies, supported by the use of technology and tools, may enhance learning and help to remove the differences that emerge when students are at different starting points in the learning process. The development of these skills is particularly important in supporting the methods by which adults learn.

THE ROLE OF ATTENTION

Mechanisms of attention are essential for virtually all aspects of learning and memory. At each stage of learning, attention processes are crucial in allocating the brain's resources within and between tasks, and to other aspects related to the control of thought and behaviour (White et al, 2009; Anderson et al, 2001).

Recent human brain imaging research shows that selective attention is controlled by a distributed network of brain areas that control different aspects of information prioritisation such as the ability to:

1. filter sensory information (parietal lobe);
2. think flexibly, reason and plan for the future (frontal lobe);
3. learn new rules and implement them in the service of adaptive behaviour (prefrontal cortex); and provide bottom-up 'drive' to sustain attention (cortical and brainstem regions).

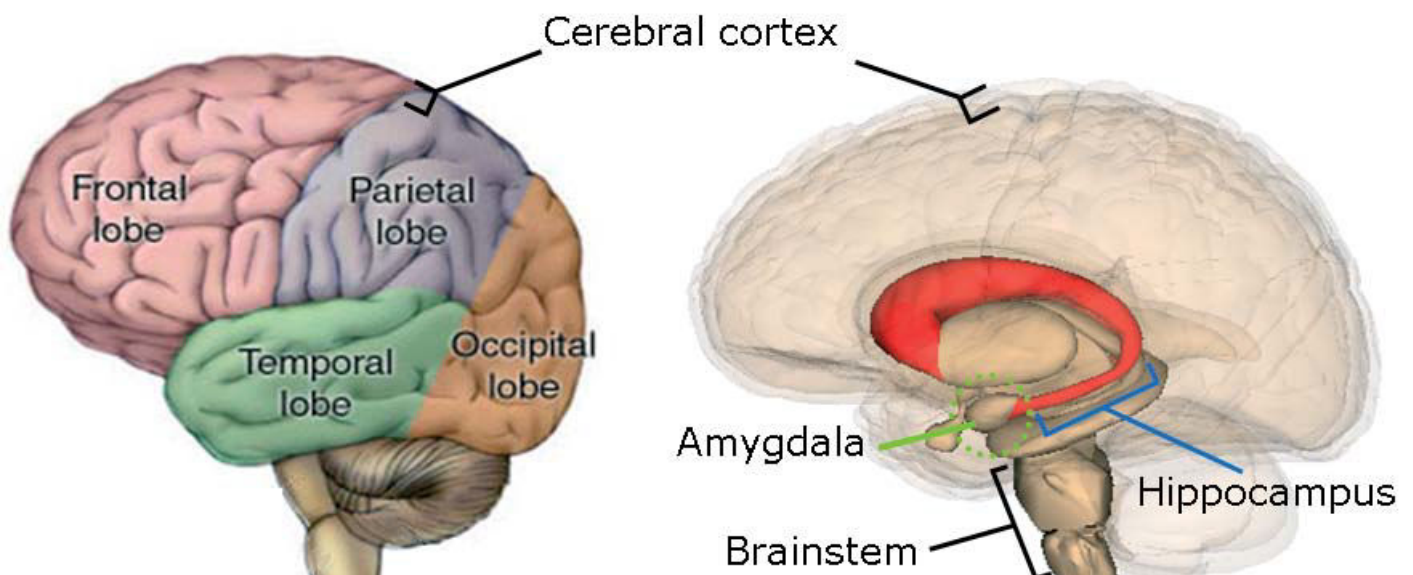


Figure 1. Key brain areas (image on right is from Anatomography maintained by Life Science Databases)

For learning to take place effectively, it is essential that attention processes are sustained over extended periods. Brain processes responsible for sustaining attention can remain effective for 30-45 minutes, but become markedly less efficient thereafter, and cannot be re-established without a break or a change in task demands. Sustained attention, also known as vigilance, is critical for effective learning (Warm, 1984).

Efficient learning requires strategic control over attention. Attention must be focused selectively on stimuli and mental operations that are relevant to the task at hand. Responses to distractors, which are unavoidable in any real life situation, must be inhibited. The focus of attention must be sustained long enough to complete the processing required for the task at hand, then switched smoothly to new stimuli and operations.

The processes that allow children and adults to regulate attention contribute to their ability to regulate their own behaviour. Importantly, the ability to delay gratification at preschool age, for example to wait before enjoying a sweet or biscuit, is significantly associated with both parental assessments of executive functioning and scores on secondary school admission tests exam in adolescence (Sethi et al, 2000). Self-regulatory skills in early childhood provide information about strategic functioning several years later.

BRAIN DEVELOPMENT

Basic learning mechanisms, abilities that allow the individual to learn, are now thought to be in place at, or within a few months of, birth (Goswami, 2008). These include the ability to detect associations between objects and events, to extract common elements or features shared by different objects and events, to learn conditional probabilities, to connect causes and effects, and to use analogies. Nurturing these abilities from the earliest stages of childhood is critical to the development of the motivations and capabilities for lifelong learning that will determine happiness, success and contribution to society.

The processes that underpin learning in infants, children and adults are much more similar than was once thought. The seemingly illogical thinking of infants and young children, well known from the work of Jean Piaget (Piaget, 1954), is now interpreted as reflecting the limitations of their ability to process information, and their limited knowledge base.

Learning mechanisms themselves are actually rather similar throughout life. The mechanisms emerge early in childhood and are then refined over the course of life. The learning and thinking skills of an adult are the end products of a developmental process beginning before birth.

Educational research suggests five factors shape learning at all ages:

1. the maturational status of brain structures and processes that constrain information processing;
2. the efficiency of the information processes required for learning;
3. the extent of the knowledge base of the individual;
4. the motivation of the individual to learn; and
5. the extent to which the environment supports learning.

These factors change systematically throughout childhood and adolescence and less consistently into adulthood. Their impact on learning is discussed in the following sections.

LEARNING IN THE ADULT BRAIN

At every age, the maturational status of brain structures and processes constrains the information processing that underpins learning. At birth, the major structures of the brain are already in place. Rudimentary connections between neurons have been generated. As the brain matures, these connections are further developed, leading to greater capacity to embed learning. Exposure of an infant to a diverse, enriched environment is essential for the development of the neural pathways required for lifelong learning. The aged brain contains a full complement of neurons and their processes (Burke and Barnes, 2006). This challenges one of the most prevalent and resilient myths about the brain that

the brain declines in function through progressive loss of neurons and shrinkage of its processes. More evidence against this myth comes from a surprising, recent discovery that some brain areas associated with learning and memory, for example the hippocampus (Fig. 1), produce neurons throughout life. However, the overall production of new neurons declines rapidly with age in animals (Kuhn et al, 1996) and Magnetic Resonance Imaging (MRI) studies suggest that this correlates with some decrease in hippocampal volume in aged humans (Valenzuela et al, 2008). There is also evidence that synaptic plasticity and the speed of nerve impulses declines in ageing brains (Foster and Norris, 1997). In particular, there is rapid decline with age in neuronal production in the hippocampus (Walker et al, 2008). These new neurons that are produced are thought to preferentially encode spatial learning and memory (Ge et al, 2008). Their decline may explain the decline in memory of time and place and the reduced ability to navigate in the aged (van Praag et al, 2005). Maintaining and boosting synaptic plasticity and neuronal production are two promising avenues for ameliorating mental decline. In particular, the impact of changes in new neuronal production has been demonstrated through animal studies. Prevention of neuronal production in adult animals leads to an inability to learn certain navigation tasks, and inhibits long-term memory formation. Conversely, spatial learning is improved in older animals by promoting an increase in neuron production through physical exercise or introducing them to an 'enriched' environment. Studies have shown that people who lead an active and exploratory life show maintenance of an area of the brain, the hippocampus, important for learning and memory. Lifestyle changes may be used in the future to enhance learning and memory.

KNOWLEDGE

Learning is constrained not only by the developmental status of information processing, but also by the extent and nature of existing knowledge. Existing knowledge provides the basis on which new learning builds, and also helps determine where to focus attention when encountering new information (Goswami, 2008).

In adults, teaching of abstract concepts and frameworks for later application in problem solving across different tasks and contexts is more effective when multiple and diverse examples are used (Gentner et al, 2003). The use of multiple examples parallels the diversity of experience that influences concept learning in children, and the development of expertise across a lifetime (Ericsson et al, 1993). Learning at all stages of life is about building new personal knowledge and understandings on to existing knowledge and beliefs.

Lifelong learning includes the continual development of knowledge in long-term memory and requires the motivation to undertake a diversity of tasks and challenges. It is also enhanced by utilising deliberative processing skills for effective reflection and learning from experience. Equating the capability for learning to the development of knowledge in long-term memory, and not to traditional measures of intelligence (e.g. IQ Tests), has important implications for all forms of learning.

Metacognition - knowledge about one's own thinking and learning - is very limited in pre-schoolers, but begins to develop in middle childhood (White et al, 2009; Hoffnug et al, 2009). The development of metacognition, in combination with control over information processing, allows the strategic use of the brain's resources contributing to increased efficiency in learning in later childhood and adolescence.

MOTIVATION

Learning requires the active and sustained involvement of the learner with the information that is to be learned. The learning of more advanced forms of knowledge and skills will typically require persistence through setbacks, failures and substandard performance, interspersed with gains that indicate a growing mastery. Notably, learning can occur through activities that do not have learning as their deliberate goal. In fact, the phenomenal burst of learning in the first few years of life are the result of the infant's natural curiosity (Hoffnug et al, 2009).

Most children begin school with positive attitudes to learning that act as a powerful internal motivation to learn (Perry et al, 2001). As they become aware that their learning is being evaluated by comparing them with their age-mates external motivation becomes increasingly important (Harter, 1996).

Across children and adult samples from a wide range of cultures, the following psychological states have been found to have the greatest impact on learning: clarity of goals and expectations that the individual is committed to achieving (Locke and Latham, 1990). Commitment to learning goals is influenced by how challenging and achievable they are seen to be;

1. self-efficacy or the individual's belief in their capability to master a task with the available resources, including their own knowledge and skills and support from teachers and others (Bandura, 1997). Students who doubt their capacity to learn will often lose their commitment to learning and withdraw physically or mentally. Those who are committed to learning, but lack self-efficacy, are more likely to suffer stress or anxiety reactions to learning that can further undermine their learning;
2. a positive valuation of the task of learning or the outcomes to be achieved from learning. This may come from mastery of a task that one values and wants to do well, the desire to learn for learning's sake, or externally administered rewards, such as grades, promotions or approval of others (Hoffnung et al, 2009);
3. a belief that ability is developed and not innate (Dweck, 2000; 2006). Individuals who believe that abilities are innate are more likely to interpret setbacks and failure as evidence of a lack of ability. Individuals with a growth mind-set for learning believe ability is a reflection of strategies and effort and are more resilient and more adaptive in their learning (Dweck, 2006). Supportive and structured learning environments that ensure progressive mastery can diminish the negative impacts of fixed mind-sets about ability; and
4. a personal identity that includes learning and mastery as important personal attributes.

ENVIRONMENT

At every stage of life environmental factors affect the quality of learning. Before birth the quality of the intra-uterine environment affects brain development. After birth, the streamlining of the brain to form the pathways that mediate information processing and the accumulation of early knowledge, require a rich and varied range of information from the environment (Blakemore and Frith, 2005) and limitations in the environment of the child can hinder this development.

Attempts to remediate learning problems are as old as the learning problems themselves but have had mixed success for some populations of students. A recently developed instructional program targeted the difficulty that children with reading disabilities experience in processing speech sounds (Shaywitz et al, 2008). Children with reading disabilities in the second and third grades of an American school received intensive practice in the sound-symbol associations that underlie written language in daily, one-on-one tutoring sessions. The children's ability to read improved and Functional Magnetic Resonance Imaging (fMRI) before, immediately after and one year after intervention showed the behavioural improvement was accompanied by increased and lasting development of the neural systems involved in reading.

A second program was directed specifically at the enhancement of executive and working memory in typically developing children. The researchers found that game-like exercises, 'played' over a five day period, successfully trained executive attention and working memory in typically developing four year-olds (Posner and Rothbart, 2005). At the end of the training, executive functioning and attention control had improved, with EEG measures of brain activity showing patterns of brain activity in areas that mediate executive attention more closely resembling those of adults.

Impressive evidence of the importance of environment is provided by the effects of intensive 'training' in more natural circumstances. Children raised in bilingual environments show superior performance on a range of measures of executive control from an early age. Importantly, the advantages of regularly using more than one language are not restricted to childhood. Lifelong bilingualism has been found to delay the onset of dementia (Bialystok and DePape, 2009). Children who take their study of music to a high level show similarly superior performance on measures of executive control.

The mechanisms underlying the effects of bilingualism and music are not, as yet, clear. One criterion for their occurrence is thought to be extensive practice. The high level of engagement of the learner may be a second factor.

3. RATIONALE

The intention of this report is to:

1. evaluate the methodology deployed in Bedford Row based on an analysis of a recent evaluation and to recommend changes.
2. assess 'what is changing' from cognitive and emotional points of view.
3. describe what might be happening in the brain as the change is taking place.
4. advise on new therapies for emotional trauma.

Important secondary aims include;

1. to assess the need to introduce neuroscience (in general) to Community Work so that new information can be incorporated into course planning and design, and integrated into life skills.
2. the promotion of research and how the Course can be strengthened going forward.

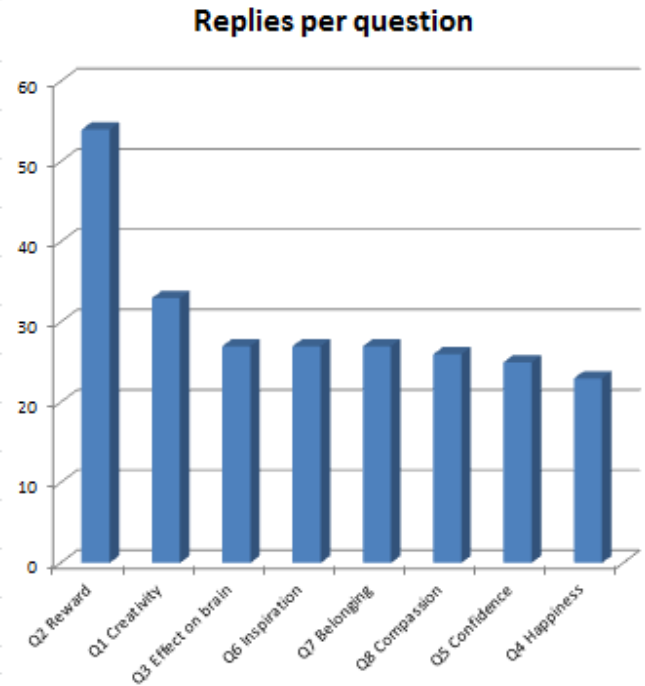
4. METHODOLOGY

1. Data collection and analysis phase was performed at end of April 2013.
2. A total of 13 out of 14 students (age range: 25-58 years) were sampled.
3. Nine questions were asked. (Appendix A).
4. The questionnaire was presented to the students and the responses were facilitated by small group discussion.
5. Students were allowed 15 minutes (in private) to reflect on the discussion and write down the points that were of most relevance for them personally.
6. Evaluations were completed individually and anonymously (students did not put their names on the evaluation form).
7. Data was grouped and collated in a qualitative manner (Appendix B).

5. RESULTS

Figure 2

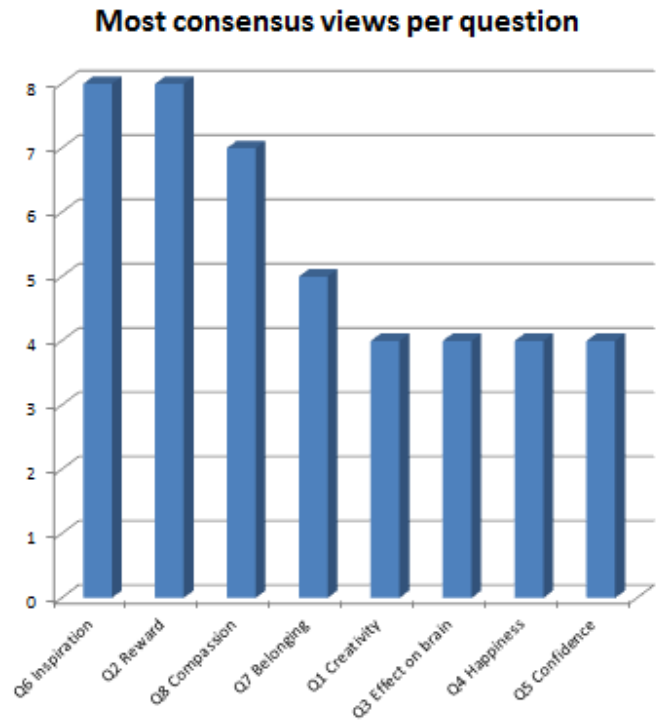
	Replies
Q2 Reward	54
Q1 Creativity	33
Q3 Effect on brain	27
Q6 Inspiration	27
Q7 Belonging	27
Q8 Compassion	26
Q5 Confidence	25
Q4 Happiness	23



1. A total of 224 comments were gathered from the nine questions asked (Appendix B).
2. A ranking (highest-to-lowest) of the number of replies per question is shown in **Fig 2**.
3. Most replies (54) were to **Question 2** and was almost double that for the next question.
4. Highest ranking may indicate interest/relevance.
5. Least replies were for **Question 4** (23) and **Question 5** (25).
6. Lowest ranking may indicate high levels of fear/anxiety.

Figure 3

	Most consensus views
Q6 Inspiration	8
Q2 Reward	8
Q8 Compassion	7
Q7 Belonging	5
Q1 Creativity	4
Q3 Effect on brain	4
Q4 Happiness	4
Q5 Confidence	4



7. There were a total of 45 consensus views (*i.e.* similar views held by between 2-8 people) (Appendix B).
8. A ranking (highest-to-lowest) of the number of consensus views per question is shown in **Fig 3**.
9. Highest consensus view (8) were recorded for both **Question 2** and **Question 6**
10. Highest ranking may indicate synergy/cohesion and how the Course may be influencing core beliefs.
11. Least consensus views (4) were shared between **Questions 1, 3, 4 and 5**.
12. Lowest ranking may indicate a need for more knowledge/tuition.

6. DISCUSSION & CONCLUSIONS

1. Most replies (54) were directed toward the rewarding aspect of the Course (Fig 2).
2. The high consensus views suggests that the learning experience is increasing reward (motivation), a sense of hope (inspiration) and an empathic and understanding time/space to explore options (compassion) in a constructive and nurturing way (Fig.3).
3. The consensus views on compassion and belonging indicate agreement on a sense of camaraderie and inclusion towards the Course (Fig.3).
4. Low consensus was reported for self-esteem (confidence) and warmth/joy (happiness) (Fig.3).

CONCLUSIONS

1. The high number of replies toward the rewarding aspects may indicate enthusiasm for the Course and the acknowledgement by the participants as a positive experience in their lives.
2. The highest consensus observed for reward, inspiration and compassion may indicate synergy/cohesion and how the Course may be influencing core beliefs.
3. The low number of consensus views reported for self-esteem (confidence) and warmth/joy (happiness) may reflect an on-going challenge in regulating difficult emotions and suggests a need for more knowledge/tuition in the area of self-esteem and coping skills.
4. While these measures alone do not reflect the total picture they provide valuable on the needs and expectations of the students and can help in strengthening the Course.
5. As stated previously many families affected by imprisonment report that some or all of their children are severely affected by ADHD and related factors. It is recommended that early assessment of needs be highlighted to the students so that appropriate and timely interventions can be offered in partner agencies if such are identified and appropriate.

7. RECOMMENDATIONS

1. Increase involvement of families as a way of educating parents and siblings about current theories about development and learning.
2. Involve parents in a teacher professional development program as parents are usually the primary educators in the first years of a child's life and it is the teacher who controls what formal learning is delivered and how.
3. Give teachers the opportunity to learn directly from observing other teachers. Many brilliant teachers exist within our schools and their skills and experience, when shared; represent a rich, valuable and cost-effective learning resource.
4. Provide an opportunity for teachers and students to understand the science behind effective techniques, highlighting key features. This knowledge could then be broadly disseminated. An introductory course in neuroscience (in particular on the brain science of learning) may be helpful for teachers and students engaged in Community Work as a means to become more resilient and adaptable to change.
5. Provide tuition in attention management skills including meditation and mindfulness.
6. Introduce a module incorporating physical exercise into the teaching and learning and emphasise the importance of physical exercise in brain learning and mental health.

7. Learning opportunities should be personalised. Rather than being given learning opportunities based on their age or year level, learners would be provided with opportunities tailored to their needs and readiness and, ideally, interests and motivations.
8. The reporting of learning should be personalised. Rather than grading a student's performance on the standardised curriculum for their grade, reports would indicate what learning progress a learner had made, recognising that some students can make excellent learning progress in a year, while still being behind the majority of students of the same age. This raises an interesting question about 'standards'. Recommendation: instead of specifying learning expectations in terms of year-level standards, could standards be set in terms of the learning progress expected of students?
9. Promote a positive sense of student identity, encourage leadership and foster high expectations amongst both the students and teachers as this has shown strong potential to improve the learning outcomes of marginalised students.
10. Explore individual differences and how specific environmental and emotional factors work to amplify or modify individuals' strengths and weaknesses with regard to learning.
11. Adopt cyber-learning - learning that is mediated by networked computing and communications technologies - as it has enormous potential in the convergence of learning and technology.
12. Continue to investigate and evaluate non-traditional models of schooling and pilot new forms of alternative educational provision to establish an evidence base to guide innovations in education.

Billy O'Connor

Professor Billy O'Connor
External evaluator

29th May 2013
Date

APPENDIX A
QUESTIONS AND RATIONALE

GENERAL

1. **How do you think that creativity in your learning environment will enable more effective practice in the field?** *(Creativity is one of the corner-stones of the learning on the Course so that is why it is relevant in an Evaluation)*
2. **What do you think is rewarded most on this Course?** *(A 'reward' increases the likelihood of something occurring, or a trait enduring, or a behaviour being repeated, both in work, learning and home life, so it is important that 'reward' be Evaluated)*
3. **Comment on how you imagine the Course's effect on the brain.** *(This question is designed to stimulate students' interest in how the brain works in general as it will be part of future training in B/Row should students wish to progress to further learning)*

PERSONAL

4. **Please comment on your level of overall happiness before you started the course and now.** *(It is accepted that as relationship is a very important parameter in helping people in distress how content or otherwise a practitioner is, both in work life and in general, will be of importance)*
5. **Please comment on your feelings of confidence and how they changed, (if they did), since the course started.** *(Confidence is an important determinant in risk taking and general effectiveness in any field of work so this question was included)*
6. **Have you been inspired on this Course? If yes, what effect did inspiration have?** *(It has been acknowledged by focus group in B/Row that inspiration is one of the characteristics that set B/Row apart from other agencies therefore it is necessary that it is included on the Course)*
7. **Have you felt included on this Course? If yes, what effect has being included had on you as a professional, as a person?** *(Attachment theory suggests that a sense of belonging is vital in healing emotional distress. Our own research names the experience of isolation in families affected by imprisonment. Inclusion is one of the most important elements to model on the Course)*
8. **What effect has compassion had on you on this Course?** *(Like 'inspiration', it has been fed back to us that a major element of the work of B/Row includes being actively compassionate in many different spheres. It is necessary that it be evaluated in any Evaluation)*
9. **Other relevant comments not covered above.** *(Students were invited to comment if any of the above themes had triggered any statements that they felt were relevant to the Course in general)*

APPENDIX B

ITEMISED FEEDBACK

1 How do you think that creativity in your learning environment will enable more effective practice in the field?

Increased retention of knowledge through creative methods, role play, discussion, listening, responding (4)

Meeting people where they are at, even in their 'madness' (4)

Patience not to judge people (4)

Sharing core beliefs in the learning (3)

Encourages engagement and participation of the whole self (2)

Follow through from application of creativity in learning to application of creativity in work (2)

Sense of equality and democracy (2)

Respect what you hear, i.e. what is real for an individual – respect what you have to say also (2)

Experiencing what you would expect a client to be experiencing when working with you

Creativity allows people to be themselves and be comfortable

Sharing different views and different responses is great for working environment

Using personal characteristics including humour patience etc. and look for those qualities in myself

Humour plays a role in healing

No right or wrong encourages valuing of opinions

Encouraging teamwork and group work – interactive both verbal and listening

Creativity is good for problem solving

Keeping going when others give up enables clients to have better chances and opportunities

'The Course is a completely new learning experience'

2 What do you think is rewarded most on this Course?

Honesty and openness, opinions and feelings (8)

Sharing common humanity and feelings (6)

Courage in risk taking (6)

Helping others in the Group (4)

Feeling loved (4)

Taking care of yourself (4)

Discovery of core feelings and using core feelings in common communication (2)

Being yourself (2)

Forgiveness of self (2)

Nothing is too big or small to talk about (2)

Showing vulnerability and trust (2)

Engagement

Challenging yourself

Listening and learning from what people have to say

Strong ethos

Mutual trust and respect evident from Day One on the Course

Frank and fearless interaction at every level

Displaying empathy

Sense of personal power

Creativity

Sharing experience, diverse backgrounds, and strengths

Voicing hope

'You cannot place a monetary value on peace of mind'

3 Comment on how you imagine the Course's effect on the brain.

More retention new things learned in holistic methods (in comparison to books) (4)
Increasing the capacity of my brain/develop 'less used' parts as the Course proceeds (3)
Constant state of engagement/participation is very stimulating (3)
Contexts are applied which means that 'application' and 'learning' are enmeshed (2)
Elastic engagement in thinking process (2)
Nurturing my mind
Encourages new ways of working things out
Real time or practical engagement of mind and feeling
Allows the brain explore different words, pictures, people, places and ways of thinking
Methods of learning in particular role play allows exploration of unfamiliar areas
Learning is easier because less fear and/or anxiety about looking foolish (than school setting)
Reflection – looking at oneself has an effect on the brain
Experiential learning = constant learning; though might be difficult to measure
Makes my thinking change – I think more about different things
Feeding the brain like training the body – helps learning
Meditation quietens the mind
Changing 'mind set' so that we can look at things differently
'The Course enables a new way of thinking'

4 Please comment on your level of overall happiness before you started the course and now.

The Course increased my level of happiness, (one example; gone from 5 to 7½), and new coping skills (4)
I am happier in my work and working with people (3)
More acceptance of self leads to more happiness and inner peace (2)
Not much different 'happiness' wise but more of optimism/expectation re the Course and its outcomes (2)
Wanting to learn and how I am learning makes me happier
Having permission to ask, when I don't know, makes me happy
Easier to cope with life's struggles and obstacles since I began the Course
The Course enabled self-care and spoiling of self
Overwhelming feeling of inner happiness that I wish to pass on to others
I feel happier that I don't judge others as much because it was a part of my personality I didn't like
Thinking and decision making makes more sense
Hearing feedback makes me happier
General level of professional and private life happiness is increased
Pushed me 'out of my box'
More enriched as a person
'This is like no other Course I have done and I look forward to it every week'

5 Please comment on your feelings of confidence and how they changed, (if they did), since the course started

Working in a group that shares difficult experiences gives great confidence (4)
Confidence from increased interpersonal skills – dealing with others (3)
Mutual understanding in an encounter with other gives confidence (2)
Be able to ask questions and 'not know' (2)
Confidence to say what I feel even if others have a different opinion (2)
Gave me confidence in what I already believed in because of the diversity of opinions and ideas
Particular awareness about where I end and others start and this gives great confidence
Be not the 'last one to talk'
I hope that I'll be good enough as I doubt myself
Being respected increased my confidence
Being happy in myself increased my confidence

Confidence to work within the prison experience never dreamed that I'd be able to do that
Trusting feelings and intuition
Less paranoid about being judged
'Give things a go' and not be afraid to do that
I got confidence from retaining and understanding information that I might be able for 3rd Level Education
'I am confident enough to say that ex-prisoners are friends; this came from the Course'

6 Have you been inspired on this Course? If yes, what effect did inspiration have?

Inspired by others' courage, humanity, openness, honesty and sharing on the Course (8)
Being allowed to 'be myself' inspires me because it involves tutors trusting me, myself for who I am (5)
Inspired by the sense of belonging on the Course, how I was welcomed (2)
People (and compassion and empathy) are important not 'officialdom' and 'red tape' (2)
Inspired by facilitators' style of teaching is it involves 'being involved' (2)
More understanding person in home and work life
Inspired by the passion of everyone on the Course
Making my personal life better and can enquire as to how people are feeling
Non-judgmental approach inspires me
I feel that my mind is changing because of being inspired
I can 'push myself more' in my workplace in particular with respect to working with computers
Inspiration brings me hope
'Our humanity is our greatest tool in this work'

7 Have you felt included on this Course? If yes, what effect has being included had on you as a professional, as a person?

Sense of felt inclusion means I can make a decision about inclusion and exclusion in my own life (5)
Included by being listened to and understood (3)
Inclusiveness boosts my confidence and self-worth (3)
Feeling included means a sense of belonging not just 'accepted' (2)
I feel like a link on a chain and the support is two way and genuine – this is very inclusive (2)
Very profound sense of inclusion on the Course because everyone learns together
Feeling of familiarity and safety because it's Bedford Row
Genuine engagement with the learning process
Diverse backgrounds mean a great sense of inclusion of different ideas and experiences
Feeling safe when I include myself and/or exclude myself
The quality of the bond formed is important, not just the bond itself, this is important emotionally
There is warmth in the group which is very inclusive
My opinion is important and this is inclusive
I just have to be 'good enough' and this was clear from the start
I include myself in an 'active' part of society and thereby excluded myself from a 'dysfunctional' part of society
My social warrior has been awakened by inclusion
'I express my feelings without fear of judgement and this is inclusive'

8 What effect has compassion had on you on this Course?

The course helped me feel compassion for self which is always easier than having compassion for others (7)
Importance of presence and listening in compassion (4)
Compassion can be a cup of tea or a smile (2)
Increased awareness of compassion not only clients but work colleagues also – where they are at
Compassion is linked to being genuine
Compassion is a driving force in my work now because of the effect that I see it having on self and others
I see how strong the emotion of 'compassion' is and I am nervous about it

Sadness is linked to compassion for me
Empathy and compassion encourages listening
The Group is different to my day-to-day working life when I have to 'hold it together' more
Compassion makes me more understanding of others
Compassion does not involve taking on others' pain because that is their own
I now understand what the word 'compassion' means
If we tell a story without compassion that's a sign that there is a place we don't want to go to
The process of validating feelings is helped by compassion
'Compassion is a signal of common humanity amongst all peoples'

9 Other relevant comments not covered above

'The value of the elastic, dynamic type of learning is spectacular'
'The potential of the whole is huge when everyone brings a part'
'Courses like this should be accredited and properly funded because they offer a way of making a big difference to a person and family's life'
'The entire Bedford Row experience is one of warmth and welcome and this is replicated on the Course'
'When I felt safe to learn it was a lot easier to retain more information than I ever would normally'
'I would recommend this Course to anyone'
'I have gained so much from this Course – mentally and physically'
'I grew up in a world of addiction and imprisonment and the self-awareness on the Course enables me to use my journey to help others'
'It's a privilege to be part of a Group where people's life experiences inspire and support others in self-discovery'

APPENDIX C

23 FACTORS THAT INFLUENCE LEARNING

1. To be effective, all learning environments must do more than impart knowledge. They must provide opportunities for practice of a skill to the point that it can be used effectively beyond the specific learning context. This will often mean making mistakes, being willing to persist and learn from these mistakes, and the provision of assessment and feedback to refine responses.
2. An important form of learning, deep learning, occurs when individuals grasp underlying big ideas and can see patterns in information and also understand the limits to the application of ideas (Schraw, 2006). Transfer of knowledge from the area now mastered to other areas can be greatly facilitated once this is achieved. This type of learning is crucial to adapt to new situations and challenges.
3. A considerable body of research shows that learning is most likely to occur when an individual is presented with challenges just beyond their current level of attainment, in what Vygotsky referred to as the 'zone of proximal development', the region of 'just manageable difficulties' where students can succeed, but often only with the support of others (Vygotsky, 1978).
4. Ensuring that every individual is presented with such optimally challenging learning opportunities can be difficult in a class of students with mixed abilities. Many teachers begin classes each school year with only a general understanding of what individuals know and can do, hindering their ability to know what will challenge each individual.
5. The implications to be drawn from cognitive psychology research regarding the impact of prior knowledge on learning trajectories have long been understood by formal educators, even if acting on that knowledge has often proved to be an intractable problem. In 1968, David Ausubel observed that 'the most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly' (Ausubel, 1968). In order for teaching to be effective, it must be tailored to individuals' current levels of readiness.
6. Grades serve many functions beyond the guidance they may offer to individual students. One of the important benefits of grades for formal education systems is that they enable comparisons of students for purposes of categorisation and selection. However, social comparison made explicit through grades may have a detrimental effect on learning through the effects on students' motivations and their attitudes to learning.
7. Students are more likely to see themselves as successful learners if they are supported to see the progress they are making over time.
8. Educational research is highlighting the importance of attitudes, beliefs and social support in successful learning. Emotions play a powerful role in brain development and learning. Motivational reactions to learning are developed from an early age, often through family influences (Dweck, 2000; Bandura, 1997). Emotionally supportive learning environments facilitate learning and develop a 'learning culture', where learning is valued and supported, as opposed to a 'performance culture' that defines successful learning in terms of grades and competitive task performance.
9. Emotions also play an important role in formal educational settings. Students appear to learn and remember best when they are involved in activities that have deep personal meaning. Learning appears to occur most readily when it is motivated by curiosity and a personal desire to understand, and can be inhibited by anxiety and fear.
10. The quality of teaching is important. As a result of his comprehensive meta-analysis of what affects student achievement, Hattie reports that outside the students themselves, excellent teaching is the single most powerful influence on student achievement. He has shown that teachers account for 30% of the variance of student achievement. 'It is what teachers know, do and care about which is very powerful in the learning equation.' (Hattie, 2003)

11. Effective teachers may well be those who are more able to customise learning to individual student needs within the demands of a classroom setting by, for example, paying attention to students' incomplete understandings and naïve conceptions. This requires much more of teachers than the creative delivery of subject matter. To be effective, teachers must be able to actively inquire into students' understandings, and create classroom activities capable of diagnosing and revealing student thinking (Dudley and Baxter, 2009).
12. The observation that emotions, beliefs and attitudes have a significant impact on student learning suggests that teaching is likely to be most effective when it connects with learners' emotions, encourages positive attitudes and beliefs about learning, and promotes positive social norms and classroom cultures (Dweck, 2000; Pekrun et al, 2002). Effective teachers understand the importance of connecting with individuals' interests and motivations, and of attempting to make learning meaningful and relevant to students' lives.
13. Effective teachers understand that learning is more likely to occur when it is motivated by intrinsic factors such as curiosity, than by extrinsic factors such as comparison, competition and the threat of failure, and use this knowledge to create positive learning cultures in their classrooms. They give students the freedom to take risks with their learning and to be relaxed about making mistakes or not knowing answers, and they develop classroom norms that value the search for understanding. Effective teachers also assist students to monitor their own understandings and progress over time, to identify gaps in their understandings, to expect new information to make sense, and to seek clarification when it does not.
14. Knowledge about the brain and how the brain learns is important as the more that teachers understand about the basic cognitive and motivational processes that influence learning; the better they will be able to help students become better learners.
15. Many of the assumptions regarding adult learning are consistent with the natural demands of informal learning. The challenge for adult educators is to create programs that allow for self-directed learning within the boundaries of the agreed curriculum, and to present materials in a way that encourages curiosity and active reflection. As previously noted, these lessons from adult learning are not lost on those responsible for formal school education, even if resources and other constraints limit their ability to implement them
16. The paradigm of lifelong learning is often deployed to describe our current learning challenges, but it has been rightly pointed out that this often suggests that 'training' is an all-purpose solution for what are in fact emerging structural problems within organisations and society as a whole (e.g. Cruikshank, 2002). In practice, much adult learning occurs at transitional stages in the life-span, when new challenges such as entering the workforce, starting a family or retirement, require learning a new set of skills and, in many cases, some rethinking of the person's self-concept.
17. The obstacles to learning differ with the stage of development. In the prenatal period, the rapidly developing brain is extremely vulnerable to disruptions likely to impair its ability to mediate learning after birth. Factors affecting the quality of the environment within which brain development occurs, such as illness, malnutrition, stress, use of prescribed or recreational drugs on the part of the mother, or premature birth, have all been shown to be associated with poorer cognitive, social and emotional outcomes in later childhood (Jones and Smith, 1973; Eleftheriades et al, 2006; Bhutta et al, 2002).
18. Individual differences in the ease with which children learn exist from a very early age as a result of innate differences in ability and temperament. Differences in the extent to which parents nurture the precursors of the skills called on by schools can actively increase these differences, and may constitute obstacles to later learning. Some parents, for example, have spent more than 1,000 hours reading to their preschool children before they begin primary school, while other parents have not read to their children at all (Adams, 1990). Shared reading exposes children to patterns of grammar and discourse in ways that conversation typically does not. It makes a unique contribution not only to language development but also to early reading achievement (Bus and van Ijzendoorn 1999; Bus et al, 1995).
19. Even when opportunities to learn are readily available, a child must feel emotionally secure to take advantage of those opportunities. Toddlers who show a secure attachment to their parents explore their environments more

actively than children with insecure attachments. Such early exploration provides the basis for successful learning experiences (Ainsworth, 1993). These in turn build up knowledge and produce the sense of competence and desire for mastery that motivates further spontaneous learning behaviour.

20. Heckman noted that 'early family environments are major predictors of cognitive and noncognitive abilities' (Heckman, 2006). When the family environment does not support development, interventions in early childhood are more effective than interventions in adolescence or adulthood.
21. Secure attachment is associated with greater competence in both the cognitive and social domains later in childhood (Fisher, 2004). Security of attachment also affects the ease with which parents can engage their infants in parent-initiated activities that build up the culturally valued knowledge that is difficult to acquire through informal learning (Bus and van Ijzendoorn, 1999).
22. Experiences that impair the development of the security of a child's attachment to their parents can then constitute obstacles at different stages of early learning. Such experiences range from insensitive parenting, that is, parenting behaviour based on the parent's self-interest rather than the child's needs (Ainsworth, 1993), to outright neglect or abuse. When neglect or abuse is chronic, leading to persistently high levels of stress in the child, it can affect the developing brain in ways that have long-term effects on cognitive and emotional development (de Bellis, 2005).
23. The transition to secondary school may mark a particularly vulnerable period in the child's ability to benefit from formal learning experiences provided by educational institutions. A Canadian study (Shapka and Keating, 2005) found that while most aspects of self-concept remain stable or show small increments, self-perceptions of academic ability decrease throughout adolescence. The decrease is particularly marked in the first year of secondary school, suggesting that it reflects the change to a school environment that may emphasise the outcome rather than the process of learning, and competition between students. Shapka and Keating warn of the possibility that schools that follow a more traditional approach to education may obstruct rather than advance learning.

APPENDIX D
FROM THEORY TO PRACTICE
CREATING AN OPTIMAL LEARNING ENVIRONMENT IN BEDFORD ROW

In learning environments that are aimed at successfully undertaking specific tasks on completion it is universally considered to be necessary to replicate the conditions that will exist in the graduates' workplace during the training itself. This readies the brain for performing such tasks as will be needed to be done and skills that are necessary under as many diverse circumstances as is possible. For example, a mechanic will experience the many different skills required, in different locations and with different subjects (that is, different cars, trucks, old and new, etc.) as is practicable during the period of his/her training. The same is true for any trade or profession. On completion of training, the real work starts and the best method of ongoing learning is thought to be gaining experience 'on the job'.

When the tasks to be completed on graduation involve building relationships, offering support, and (inevitably) challenging people who are angry and fearful, suspicious and distrustful and whose self-esteem may be low, due to generations of involvement in crime, anti-social behaviour, and imprisonment, it throws up particular challenges for prospective trainers. After all, it could be convincingly argued that if what is being delivered universally in this area was working well, we would not have the social problems in society that we have.

Replicating the environment that the graduates will meet on completion of training, i.e. their subsequent work in the field, is far more challenging in this area of learning than it may be for more 'technical' type activities. The reason for this is that the student cannot be distanced, emotionally, from the subject matter that he/she is immersed in. If she/he is 'distanced', we are not really replicating the subject matter! So we are faced with a dilemma.

The brain's optimal learning environment on a course such as this could easily be upset by poor judgment and over emphasis on replicating traumatic elements only rather than balancing that with the joy, rewards and satisfaction of working. Alternatively the difficult issues of how the brain reacts to trauma and emotional distress could be avoided altogether, and the learning could be academic, focusing on assignments with marks given for correctly written bibliographies, with extensive learning of the 'theories of change' instead of real-time immersion in the actual experiences of the work. (This would be analogous to the mechanic mentioned above learning how to fix a car by reading a book).

Brain research shows that optimal learning takes place in an environment that is creative, inclusive, rewarding and bolstered by good, healthy boundaries. People in deep distress due to imprisonment, frequent tragedy, addiction, financial worries, and high anxiety also benefit greatly from an environment that is creative, inclusive and boundaried.

In this respect the Bedford Row course endeavours to, and is successful in, the goal of creating an optimal learning environment for the brain to learn the necessary skills that will be needed 'in the field'.

The challenge for the course is to attend to the overall self-esteem of students as was evidenced in the questionnaire responses. As stated above, the low number of consensus views reported for self-esteem (confidence) and warmth/joy (happiness) reflects this as an on-going challenge and also reflects well on the honesty of the students, self-awareness, and ability and willingness to reflect.

Ongoing and consistent supervision as the work is taking place will assist in regulating the difficult emotions that are an inevitable consequence of ongoing work.

In addition to supervision, further training is recommended that would focus on the areas of self-esteem and general coping skills that would enhance the long term effectiveness of graduates in the field.

It is also recommended that evaluations on future courses should include a base line of the matters thought to create an optimal learning environment prior to the course starting and this would add significant meaning to what is sampled at end of the course. If further training is undertaken with this cohort this evaluation would constitute a good baseline for that.

APPENDIX E

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