Inclusive Practice: Researching the Relationships between Dyslexia, Personality, and Art Students' Drawing Ability

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Abstract

This paper addresses the conference theme of *inclusivity* from two standpoints: firstly, collaboration between researchers from fields including psychology, educational study support and studio drawing practice, which has revealed insights to students' learning difficulties in drawing not easily accessible through mono-disciplinary research practice; secondly, a proposal is made outlining a strategy for the teaching of drawing which attempts to include students of varying abilities in drawing, and to empower their practice equally.

The paper demonstrates the effectiveness of an inclusive, cross-disciplinary approach to exploring the relations between personality factors, perceptual problems, visual memory and drawing skills in art students who report difficulties producing accurate drawn representations of their observational experiences.

Results indicate that whilst in general drawing ability seems not to relate to dyslexia, higher drawing ability does appear related to the personality measure of conscientiousness, and also both to sex (in the biological sense, males drawing better than females) and to gender (those who perceive themselves as more masculine drawing better, whether they are male or female).

Poor drawers are less good at accurately copying angles and proportions, and their visual memory is less good.

These findings inform a proposed inclusive group teaching strategy for drawing which attempts to address these weaknesses without hindering the progress of the more able student.

Introduction

There is a growing realisation in the art schools that some students cannot draw well, and that those students would like to improve so as to empower their practice. At the Royal College of Art (RCA), a particular problem arose with students on courses such as textiles, jewellery and ceramics, many of whom were extremely competent in their particular medium, but who found that practical problems arose from their lack of drawing ability. The student realises that drawing is a skill they both lacked and needed.

There has also been a growing realisation that a high proportion of students in art schools are dyslexic (Rankin et al., 2007). One explanation is that dyslexic students find it more difficult to study sciences or the humanities because of their problems reading and writing, and so they tend to gravitate towards more 'non-verbal' disciplines where being dyslexic is less of a problem (2,3). Another is that although dyslexic students have problems with reading and writing, they also have special talents in visual spatial ability (4,5), in particular types of spatial task (6,7,8), in aesthetics overall, or more specifically in the visual arts (8),

although there are dissenting views concerning this "popular (and comforting) view" of dyslexia (3). Finally, there is the possibility that, in so far as drawing is a symbolic act of representing the visual world by marks that to some extent are arbitrary, then dyslexic readers will also have specific problems with drawing. The three theories make entirely different predictions about the relationship of drawing to dyslexia, suggesting in turn that dyslexic students will be better, the same, or worse at drawing than non-dyslexic students. The only thing that can be said with certainty is that dyslexia does not preclude the production of work of outstanding artistic ability (9). An important point in any study of the relationship of talent with dyslexia is that Everatt (10) has shown the best single predictor of dyslexia is spelling ability, and we therefore included a test of spelling ability in the present study.

The argument that an inability to draw accurately comes from errors of perception has been put most forcefully by Cohen and Bennett (11). In a more recent paper, Cohen and Jones (12) extended the argument, suggesting that "…the major source of drawing errors lies in the initial perception of the to-be-drawn object". An alternative approach to perceptual problems in drawing was reviewed by Cain (13) who asked art students to copy six-sided polygons, referred to as 'houses'. Cain found significant correlations between the accuracy of portraying the houses, and subsequent grades obtained by the art students.

An aspect of drawing that has been little studied is the role of visual memory. A rare exception is the study by Jones (1922) who found that the drawing ability of 7th and 8th grade children correlated with a measure of visual memory. We therefore included visual memory within our research, not least because of several studies that suggest dyslexics have poorer performance at the task, either generally (15), or more specifically in a subgroup of dyslexics who also have poor mathematical skills (16).

Method

The first stage of our study used a questionnaire that assessed, amongst other things, self-perceived drawing ability in two groups of art students: a Foundation Diploma cohort at Swansea Metropolitan University (SMU), and MA students at the RCA.

The second stage of the study assessed drawing ability directly in subsets of art students chosen for being high or low on self-assessed drawing ability, and high or low on the spelling test (which correlated with diagnoses of dyslexia).

Finally, a control group of non-art student participants drawn from the psychology student cohort at University College London was also tested on the same drawing tasks and completed a questionnaire that was similar to that given to the art students.

Drawing tests.

A subset of the art students and all of the controls were tested on a series of drawing tasks:

1. *Copying of the Rey-Osterrieth complex figure* (17,18)
2. *Immediate recall of the Rey-Osterrieth figure*. Participants were asked to draw the figure once more but this time from memory.
3. *Hand drawing*. Participants were asked to make an accurate drawing of a photograph of a hand holding a pencil.
4. *Arp drawing*. Participants were asked to make an accurate drawing of the 1951 lithograph *Configuration* by Hans Arp.
5. *Malevich drawing*. Participants were asked to make an accurate drawing of Kazimir Malevich's 1915 *Suprematism With Eight Red Rectangles*.
6. *'House' drawing task*. Participants were asked to make accurate drawings of five 'houses' (13)
7. *Blocks drawing*. Participants were asked to make an accurate drawing of a photograph of an object which consisted of a series of children's toy blocks joined together.
8. D*elayed recall of the Rey-Osterrieth figure*. Participants, who had not been warned that they would be required to do this task, were asked to make a drawing of the figure again from memory.

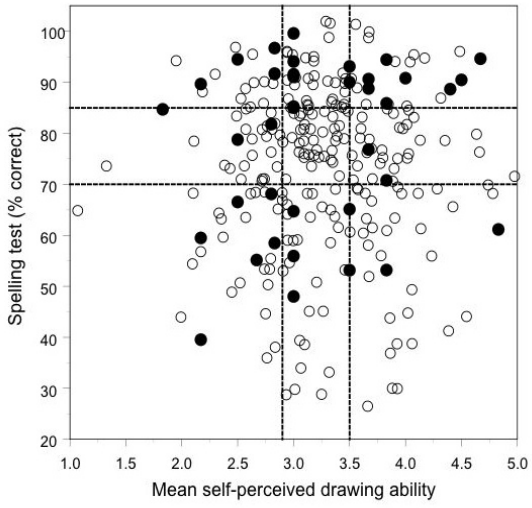
Discussion of Results

Drawing accurately and fluently is a difficult skill to learn, and while it still underpins many of the visual arts, changing pedagogical practices means that there are now students who would like to be able to draw well, but cannot. An important step towards empowering those students is to understand both how people learn to draw and why some have more difficulties than others.

The present study found a number of useful and important results. Firstly, it was clear that art students have insight into whether they are good at drawing or not, and the validity of those insights is confirmed when self-perceptions were compared with actual performance on a series of drawing tests It is also of interest that even poor drawing art students were on average better at drawing than were non-art students, suggesting that some skills are indeed present, albeit not at such a sophisticated stage as in the good drawers, and such skills might form the basis for interventions to improve drawing further.

Our study was driven originally by the possibility that poor drawing ability might be related to dyslexia or other problems with reading. However we found no evidence for this, either in the questionnaire study, or in the study that assessed drawing ability on a number of tasks, including an assessment of technical quality and aesthetic quality. Neither did a classification of the drawings as having characteristics putatively associated with dyslexia show a significant correlation either with a prior history of dyslexia or with spelling ability. This result is illustrated below: **Figure 1** (Solid circles=participants in drawing tests; open circles=other questionnaire respondents)

The conclusion therefore is that dyslexia has little or no relationship to drawing ability in art students. However, it is possible, particularly given the association of mathematics achievement and Rey-Osterrieth performance in our data that there is a subset of dyslexics with mathematical problems who are particularly poor at drawing. Our data do not have adequate power to search for such a group, and we are therefore carrying out a separate study to look at the question more directly. The reason that so many art students are dyslexic still requires explanation, but it seems unlikely that dyslexics have either special skills or particular problems with making visual representations of the world.



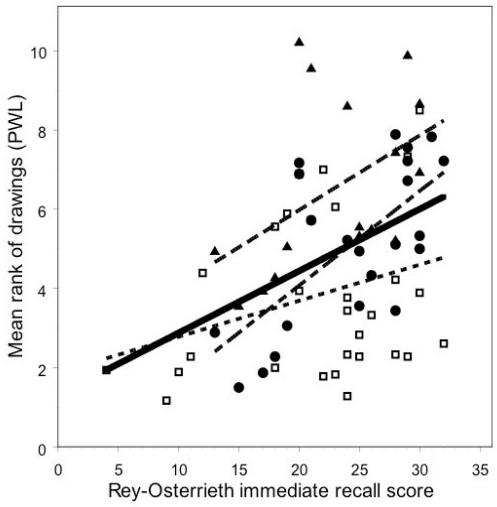
It should be pointed out that drawing ability seemed not to relate to the wide range of background variables, and those null correlations are also of some interest. We could find no evidence for instance that drawing related to age, to parental attitudes towards art, to any of our measures of handedness or right-left problems, to a history of dyspraxia or stuttering/stammering, to aesthetic behaviours in general, to educational achievement either at GCSE or A-level, or to personality. All these null correlations help to exclude some explanations of the reasons some art students have troubles in drawing.

The experimental part of our study was important, not only because it validated the self-rated perceptions of drawing ability, but also because it allowed a more detailed examination of underlying processes in drawing.

One of the tasks, the ‘House’ task of Cain (13), explicitly looked at the low level processes of accurately representing angles and proportional relationships. Overall it is clear that accuracy in drawing angles and proportions correlates with ability to draw the hand and the blocks, although a more detailed analysis suggests that it is only performance in Cain's ‘House’ task which is doing the prediction.

Cain's ‘House’ task has two separate components of representing angles and proportions. To some extent these are inevitably correlated (although it is worth noting that a 'house' for which just the side walls were stretched upwards would fail on its proportional representation but would be accurate in its angular representations). Nevertheless it does seem that

angular representations are more important as predictors of drawing ability than are proportions. Why angles should be better than proportions is far from clear. Conventional teaching of drawing often emphasises proportions, measured in the traditional way with the pencil at the end of the outstretched arm and held vertically or horizontally. Measuring angles that way is indirect, and may well be inefficient. The direct measurement of angles (e.g. by rotating a pencil until its angle matches that of an object) is also difficult, as there is no reference angle against which the pencil can be compared. It is therefore possible that the veridical perception of phenomenal angles is difficult, and hence those who have mastered it better are also those who are better at making representational drawings.



Our study also found that visual memory as assessed by the immediate and the delayed reproduction of the Rey-Osterrieth figures, is related to the production of visually accurate drawings, as indicated above:

Figure 2 (Controls (non-art students) = squares; art students with high self-rated drawing ability =triangles; art students with poor self-rated drawing ability = circles).

In our study, there was no correlation between performance on the Rey-Osterrieth task and on the Cain 'house' task, so that performance on the reproduction of angles and proportions and on the Rey-Osterrieth figure are therefore independent predictors of drawing ability, together accounting for almost a third of the total variance in performance. Visual memory may not be trainable, but it may be a substrate on which drawing performance is subsequently built.

In Conclusion: A Proposed Inclusive Teaching Strategy

As well as wishing to understand why some art students cannot draw well, we would also like to be able to help art students who cannot draw but wish to draw well. Our study raises several possibilities. Firstly, it would appear that motivational and personality factors are important in being able to draw well, and one possibility is that increasing both motivation and the opportunity to practice drawing will improve performance (as with any complex skill). A possibility raised by the present study is that art students may benefit from the explicit teaching of techniques for carrying out very low level copying skills, such as in accurately representing angles and proportions. An alternative possibility is that accurately perceiving angles and proportions would itself be beneficial.

A study to examine the effect of both approaches is being considered at present, structured upon teaching strategy designed to consolidate learning through repetitive procedures first presented by Nist and Mealy (19) reported in Mortimore (20), who express this type of learning as an eight step process:

1. Focus attention
2. Give a general overview
3. Introduce new terms
4. Go through the procedure step by step
5. Model the process - think aloud - introduce new frameworks of thought; the students also discuss the process and teach each other
6. Guide the practice- students repeat the instructor's strategy with support
7. Independent practice
8. Re-demonstrate the practice, if necessary, to reinforce

The eight-step process outlined above can be adapted to a strategy of teaching drawing in a traditional life-room, where the student is encouraged:

1 To focus attention upon the model and their relationship with the surroundings (figure/field relations).

2 To construct a general structure, or scaffolding, in terms of drawing the main axes of the pose, using, for example, the 'invisible grid' of lines running across the figure that connect salient points such as nose, nipples, navel, knees, and knuckles. These axes might be the vehicle by which students hone their skills of accuracy in drawing angles and lengths in proportion so that the repetitive, low-level exercise is perceived to have contextual meaning for the student.

3 To introduce visual concepts such as 'contrast boundary' in place of the common term 'outline'. This immediately engages the student with the variety of tonal values across the whole subject-matter and, in particular, allows the student to notice how the contrast boundary fluctuates at the edges between figure and field. The concept of 'negative space' (spaces between those items in the visual field normally labelled with language), can also aid students to look without language, to apply specifically non-verbal methods in the process of drawing.

4 To repeat these first three steps at the beginning of every new pose.

5 To discuss with the tutor the process under way on the drawing board.

6 To repeat the instructor's strategy with support from the tutor.

7 To draw independently at unsupervised open-access life sessions.

8 To re-demonstrate the practices and strategies offered by the tutor in order to reinforce them.

Could this be a helpful model when thinking about teaching drawing processes? And what types of strategies might be incorporated into such processes?

Plans are in hand for the probing of these questions in the Foundation Diploma course at SMU, and we look forward to reporting progress.

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