Analysing children's drawings: Applied imagination

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Abstract:
This article centres on a research project in which freehand drawings provided a richly creative and colourful data source of children's imagined, ideal learning environments. Issues concerning the analysis of the visual data are discussed, in particular how imaginative content was analysed and how the analytical process was dependent on an accompanying, secondary data source comprising brief, explanatory written texts.

Analysing children's drawings: Applied imagination

The creation of a school environment in which imagination in its most empowering forms can flourish requires the normalisation of imagination (Saul, 2001). This article centres on a research project in which freehand drawings provided a richly creative and colourful data source of children's imagined, ideal learning environments. Issues concerning the analysis of the visual data are discussed, in particular how imaginative input was analysed, and how that process required accompanying written descriptions as a secondary data source.

Issues in analysis of visual data

Image based research has been combined successfully with student voice in school improvement and has become accepted as a valid method of enabling student voice (Barraza, 1999; Bland, Carrington & Brady, 2009; Buldu, 2006; Carrington, 2007; Schratz & Steiner-Loffler, 1998; Shratz-Hadwich, Walker & Egg, 2004). As well as contributing to pedagogical decision-making, student voice is increasingly being promoted as an essential aspect of planning processes in school-design (Woolner, Hall, Wall & Dennison, 2007). Image based research combines comfortably with imagination when it is used to look into the 'inner world' of school from the perspective of students (Schratz & Steiner-Löffler, 1998) with such images presenting "a rich source of qualitative data" (Walker, 2008, p. 100).

While the school improvement area of education research has benefitted from visual methodologies, however, much of the literature relating to image-based research is developed from other disciplines. Galman (2009) asserts that educational researchers still tend to resist visual research as it does not fit neatly into the accepted customs of the discipline. Further, it tends to concentrate on filmic and photographic material "which leaves the other visual arts somewhat out

of the discussion" (Galman, 2009, p. 198). While freehand drawings can provide a richly creative and colourful data source for visual researchers, a literature search shows drawing to be a minimally-explored methodology with few models of good practice in any form of image-based research outside of anthropology and ethnography (Prosser & Schwartz, 1998).

One of the difficulties this creates for visual researchers In the field of education is that, although attempts at establishing a suitable analytic framework have resulted in useful concepts being put forward, these generally relate to specifically situated work, such as that produced as artefacts in media studies and visual anthropology or in psychoanalysis and cognitive development. Whereas Sharp (2009) suggests, among other means, investigating the work of others in identifying 'fit for purpose' processes, the limited availability of such work in drawing analysis, particularly in the education field, does not offer much advice. Whether the work of children or professional artists, however, drawing can present visual researchers with rich data; the process of analysing what can be ambiguous and very subjective data, though, can be messy and decisions about ensuring credibility need to be made in the very early stages of initial project design.

Treating visual data as a kind of text (Galman, 2009; Horn, 1998; Lodge, 2007) allows analytic techniques to be borrowed from more traditional research, although, as noted by Horn (1997, p. 227), "not all visual language is instantaneously understandable". Collaboration with participants as part of the process of creating and analysing visual work, or "talk and draw" (Prosser, 2007, p. 22), may be useful to elicit children's ideas about schools and classroom practice. This, of course, requires proximity to the participants which is not always possible.

In a project that combined the visual and verbal, Yuen (2004) used drawing as an ice-breaker and a means to enable children in focus groups to express their thoughts. In this case, the visual data strengthened that obtained through discussion with the participants. Prosser (2007, p.14) however, stressed that visual research must give primacy to "what is visually perceived rather than what is said, written, or statistically measured". Discussion should, thus, become a secondary source, used to confirm the primary data obtained through visual methods. For example, a research project that

explored children's concepts of learning (Lodge, 2007) used discussions with the children some time after the initial data collection data from the drawings, asking what changes they would make and triangulating the initial analysis. Thus, the authenticity of visual analysis can be established through triangulation with material from a secondary source such as participant discussion or written text.

A further example of a visual research project with children is described by Tandy (1999) in which 575 drawings were collected and assigned to one of ten categories on the basis of their content. While Tandy defines the categories, however, he does not mention how the data were analysed nor whether the categories were pre-determined or were developed from the data. Such categories, or themes, however, can be developed following the principles of "grounded theory" (Strauss & Corbin, 1990). Walker (2007), for example, suggests that themes "will emerge as the drawings are reviewed individually and collectively (p. 100). Prosser (2007) and Walker (2007) propose that specific research questions should be conceived and worded so as to guide analysis of images.

The above examples were valuable in constructing and analysing the 'Imagine a School….' Project discussed here, although imaginative input required an original analytical framework.

The project

While the project addressed in this article has been fully described elsewhere (see Bland, 2011), a brief overview is necessary to contextualise the discussion of data analysis. The key research questions asked were:

- How do children's images depict their perceptions of an ideal school?
- What implications are there for the design and use of educational spaces?

The project, encouraged Australian school children to engage their imaginations in considering their ideal learning environment. 133 drawings and accompanying narratives were collected from Year 5 and Year 6 children in nine Queensland primary schools.

Imagination theory

Imagination theory underpinned the investigation and supported the visual methods employed in the project. Theories proposed by Greene (1995) and Egan (2003), both of whom encouraged imagination in addressing issues of education reform, contributed to the typology of imaginations (Bland, 2011) used in the data analysis. The processes of the research were consistent with Greene's (1995, p. 5) "social imagination: the capacity to invent visions of what should be and what might be in our deficient society, on the streets where we live, in our schools", advancing Saul's (2001) call for the normalisation of imagination.

Approach and methodology

Primary school students in areas of Queensland ranging from inner-urban to rural-remote were invited to participate in the project. Invitations to the principals of state and non-government primary schools in those regions resulted in nine positive responses and 133 student submissions (82 female, 51 male).

Years 5 and 6 students (about 9-11 years of age) were considered appropriate for this study, recognising Vygotsky's fourth stage in the development of the imagination, 'symbolic representation' (Valett, 1983). Studies have shown that by ages 7-9, "children have developed a graphic language … including specific symbols and rules of spatial organisation" (Walker, 2007, p. 97) and at around age 9-11 they strive for greater accuracy (see also Barazza, 1999).

Each school nominated a classroom teacher who was provided with a package of information about the study, including an optional lesson plan, allowing for the study to be included as part of regular classes, rather than adding to already heavy work-loads, if required.

Participating children were requested to produce their work on A4 paper to facilitate computer scanning. Drawings could be in black and white or colour, and could be annotated to help explain any aspect. Importantly, students were asked to write up to 200 words to supplement the visual product and to explain their drawing.

The analytical process

From the moment the first batch of drawings arrived in the mail, it was obvious that the project was going to provide delightful and challenging experiences with many highly expressive and detailed submissions. A Microsoft Excel spreadsheet was created for each school's submissions and MaxQDA software was used to assist in interrogating the data and identifying emergent themes. The data were coded, firstly, according to the ways in which imagination was depicted in the drawings. Secondly, the data were coded for content; i.e., the key features of the children's ideal learning environments. Sub-themes emerged within each category through constant comparison with the written texts.

Coding the drawings: imagination

An analytical tool was developed for this study across the four dimensions of imagination developed by the researcher (Bland, 2011). This typology groups the application of imagination into four principal types:

- **Fantasy** is the type of imagination that includes daydreams, reverie and hope but is, mostly, unproductive.

- **Creative imagination** equates to the popular notion of imagination as being inventive, problem-solving and poetic.

- **Critical imagination** is reflective and investigative, and can be challenging and disruptive.

- **Empathic imagination** is seeing and questioning through the eyes of others and recognising the right of the other, particularly the marginalised, to be heard.

Coding the drawings: content

Each drawing was then coded by content to identify common features among the submissions. A key factor in analysing the drawings was to consider the features given the most emphasis by the artist. From the myriad elements portrayed, analysis was initially limited to the three most visually prominent features of each drawing. These were noted and this selection was tested against the written information provided by each contributor.

Key themes and sub-themes coded were:

- general environment (natural, beach, rain forest, space, fantasy)

- farms and gardens (animals, plants, learning, food, relaxation)

- buildings and grounds (play areas, sports facilities, classrooms, specialist rooms/buildings, toilets, tuck-shops, car-parks)

- environmental considerations (solar power, natural light)

- water (ocean, rivers, lakes, pools, fountains)

- technology (computers, transporters)

- furnishings (desks, chairs, tables)

- pedagogy (curriculum, teaching and learning)

- people (teachers, other staff, students, parents)

- organisational properties (age groupings, school hours, access)

Using the written texts to corroborate the interpretation

Walker (2007) contends that verbal input is essential to understanding the content and meaning of a child's drawing. Prosser (2007, p. 18) concurs, stating that "images are polysemic; they have multiple meanings. Adding context on the making or usage of the image extends interpretation but the standpoint of the observer cannot be ignored". Commenting on their own visual research project, Darbyshire, MacDougall and Schiller (2005) warn that an "adultist" interpretation is likely to be a misinterpretation. This problem of analysing visual material from the standpoint of the viewer whose age, background, and culture, may differ from those of the artist was evident in a cautionary example in the project that is the focus of this article. The work of a Year 5 female student from a faith-based school depicted a girls' school with a number of small female figures in the play area. The researcher's initial assumption was that gender segregation was an essential aspect of this student's ideal learning environment, a view possibly prompted by the religious culture (although co-educational) of the participating school. The student, however, in her written

text, stated: *"I chose a girl school because I'm a girl and it's easy for me to draw a girl"*. Needless to say, this led to a re-examination of all the analysis to that point to ensure that no similar assumptions had been made. The written material that accompanied the drawings for this project thus proved essential to interpreting the children's drawn ideas and distancing the researcher's subjective standpoint as far as possible. While the drawings provided the major vehicle for their imaginations, their explanatory written texts provided crucial information about what they had drawn, significantly informing an understanding of the visual work.

Isolating teacher input

Teacher influence became obvious in one or two batches of drawings. For example, one school's submissions mostly met the category of 'fantasy', providing some of the more fantastic imaginative concepts, while another school's submissions were mostly floor plans. The researcher determined that the supervising teacher in these cases had given fairly specific guidance to the participants about ways to proceed with the work. A contributing factor in this 'teacher effect' was that some of the supervising teachers were generalist primary teachers while others (mainly in private schools) were specialist art teachers. Some teacher effects may be more subtle and harder to detect, so for the purposes of this study, such factors were identified through repetition of particular ideas and styles in the children's work that were unlikely to result just from sharing among close friends.

Conclusion

To some extent, all research, whether qualitative or quantitative, involves subjective judgments – setting research boundaries, deciding what questions to include and exclude, etc. – and moral and/or political commitments (Denzin, Lincoln & Giardina, 2006). It can be argued that visual research, working with potentially ambiguous and subjective data, requires even more subjective approaches in data analysis. Indeed, in this project, the decision to identify the three most prominent features of each work, to place limits on the mass of visual data gathered, was subjective. By triangulation with the written text accompanying and explaining each drawing,

however, isolating these features could be authenticated. Further, the remaining visual data was always available for deeper analysis if needed.

A secondary source, then, such as written text, personal communication, or other visual material, is essential to informing the analysis of visual data to ensure, as far as possible, the authenticity of interpretation, and to avoid adultist construals of meaning. Children's drawings, and their inspired imaginations, can then be a rich mine of exciting, surprising, and innovative research data in education.

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