The Rules Grid: helping children with social communication and interaction needs manage social complexity

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This article introduces a new practical visual approach, the Rules Grid, to support children who have social communication and interaction needs. The Rules Grid involves a system whereby behaviours of concern can be broken down into smaller behavioural manifestations which in turn lead not only to problem identification and specification, but provide a visible structure to support behaviour change at a reasonably micro level. The paper provides an overview of the theory and research that support visual approaches before outlining some important examples of visual strategies. This is followed by a presentation of a single case study which illustrates how the Rules Grid could be used.

Keywords: Rules Grid; autism; visual approach; social communication; interaction needs

Introduction

I think in pictures. Words are like a second language to me. I translate both spoken and written words into full-colour movies, complete with sound, which run like a VCR tape in my head. When somebody speaks to me, his words are instantly translated into pictures. (Grandin, 1995b, p. 19)

Visual approaches, such as Social Stories and Picture Exchange Communications Systems, are extensively used with children who have social interaction and communication difficulties to promote inclusion (Bondy & Frost, 1994; Gray, 1995; Preis, 2007; Quill, 1997). Visual approaches are defined as “two-dimensional or three-dimensional representations of a particular concept used to communicate and teach that idea or concept” (Tissot & Evans, 2003). This article introduces an additional visual approach called the Rules Grid and the term “Autism” will be used as a rough shorthand for social interaction and communication difficulties. The article begins with a brief review of the rationale for using visual approaches and frequently used examples of existing visual approaches before introducing the Rules Grid with a practical example.

Autism is characterised by a triad of impairments (Wing & Gould, 1979):

1. impairment of social relationships;
2. impairment of social communication;
3. impairment of imagination.

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Autism is also seen as being a “continuum disorder” with differences between how each individual experiences the triad of impairments. More recently, the phrase Autistic Spectrum Disorder or Condition (ASD or ASC) has been used in an attempt to illustrate this.

There is a wide range of approaches and strategies recommended to meet the educational needs of children with autism (see Jordan, Jones, & Murray, 1998, for a review). Visual approaches are among the most common recommendations (e.g. Attwood, 1998; Cumine, Leach, & Stevenson, 2000; Hodgdon, 1999; Howling, 1998; Jordan & Jones, 1999; Peeters, 1997; Powell, 2000; Siegel, 1996). Proponents of visual approaches are not always explicit about why visual approaches would be superior to verbal approaches or how the approaches are derived from, or related to, theories about the causes of autism (Arndt & Pesch, 1984; Tutt, Powell, & Thornton, 2006). Peeters (1997) has identified nine possible reasons why visual approaches could be effective for children with autism; that a visual approach:

1. makes abstract concepts more concrete;
2. communicates things that cannot otherwise be understood;
3. helps individuals cope with and prepare for changes;
4. increases independence;
5. reduces failures and behavioural problems;
6. reduces stereotyped behaviours and therefore increase socialisation;
7. reduces dependency on specific primary care individuals and decreases anxiety when staff or environmental changes occur;
8. helps individuals with autism understand and manage the concept of time;
9. reduces passivity.

Advocates of visual approaches have looked to cognitive theories of the causes of autism, including, Theory of Mind, Executive Function Deficit and Central Coherence Deficit, to provide an underpinning theory and justification for the application of visual approaches. A brief review of the rationale for visual approaches derived from these theories follows.

**Theory of mind**

Theory of mind is argued to be an innate ability that develops to enable individuals to perceive the emotions, points of view and attitudes of others (Baron-Cohen, Leslie, & Frith, 1985; Hobson, 1993). Jordan and Powell (1995) proposed that theory of mind deficits impair a child’s ability to develop an “experiencing self”. It is argued that an “impaired sense of self” will impact on an individual’s ability to experience events subjectively and therefore results in difficulties internalising learning and, consequently, recalling personal events to aid experiential learning. Visual prompts are therefore seen as a means to make situations concrete and explicit so the child can learn “from the outside in” (Powell & Jordan, 1997).

**Executive functioning**

Executive function has been defined as “the ability to maintain an appropriate problem-solving set for attainment of a future goal” including: organised search and flexibility of thought and action, planning, impulse control, inhibition of proponent
but incorrect responses (Luria, 1966; Osonoff, 1995). Research has suggested an association between working memory deficits and difficulties with verbal comprehension (Daneman & Merikle, 1996). Visual information that remains in view of the child, it is argued, requires less processing capacity and therefore places less demands on the executive function (Quill, 1995, 1997).

Central coherence
Central coherence is the tendency to integrate diverse information to construct higher level meaning and to understand events in their contexts (Frith, 1989). This includes difficulties with focusing attention, choosing and prioritising. Children with these deficits, it is argued, find it difficult to construct high level semantic information from auditory information. Visual approaches could accommodate these difficulties by giving a model or picture of the final goal so the child knows what to expect and could help with sequencing and understanding cause and effect and motives (Cumine et al., 2000; Peeters, 1997; Powell, 2000).

More generally, children with autism have been referred to as being “visual learners” (e.g. Quill, 1995, 1997; Tissot & Evans, 2003). In this tradition children are seen as having distinct sensory channels for learning including, but not exclusively, visual and auditory (Baddeley, 1998; Paivio, 1986). It is argued that if impairments can be specific to a channel then teachers should use the intact or less impaired channel through which to teach (Peeters, 1997; Quill, 1995, 1997; Siegel, 1996). The perception that children with autism are visually learning has been supported by research that suggested that some children with autism have strengths in visual perceptual skills and processing visually static information (e.g. Hodgdon, 1995; Lincoln, Courchesne, Killman, Elmasian, & Allen, 1988; Quill, 1997).

Consideration of visual approaches
Visual approaches do not offer a panacea because a significant number of children with autism can also have difficulty with perception that impacts on their ability to draw inferences from visual information (Powell & Jordan, 1997). It is also reported that children find focusing difficult in visually distracting environments (Grandin, 1995a). Quill (1997) has argued that it is unlikely that one educational methodology will succeed with all children and that there will be a need to undertake detailed assessment to determine the best approach for individuals.

There are difficulties inherent in a narrow learning style approach. Not least is the argument that research in effectiveness of visual approaches is limited and the approach is under theorised (see Coffield, Moseley, Hall, & Eccleston, 2004, for a review). In addition, visual approaches to teaching and learning are not unique to autism so it would be incorrect to suggest that they represent an “autism specific approach”.

Most visual approaches recognise that social situations can be complex. Not all social situations are based on explicit rules; rather the social rules tend to develop from inferences. This includes customs around social laughing or intensity of eye contact. Difficulty with understanding social situations can act as a barrier to initiating and maintaining friendships. Visual approaches, by making social rules explicit, aim to reduce the complexity of social situations. However, given the complexity of social situations, there is the possible danger that reducing social skills to “conveniently sized, apparently teachable bits” could result in “social incompetence” as individuals
attempt to apply an appropriate skill in an appropriate context without recognising the nuance of how to adapt that skill to a context (Jordan & Powell, 1995, p. 14). This reinforces the importance of also adopting contextual strategies such as making accommodations to the child’s environment and educating and raising awareness of people the child meets.

Although various studies suggest that between 20% and 50% of individuals with autism remain mute it is argued that adults should “never” give up on spoken language approaches (Jordan & Powell, 1995). Research also suggests that a combination of visual and verbal is more effective than using just visual or verbal. Visual instruction appears to be more effective than verbal when task stimuli were unfamiliar (Nailos, Whitman, & Maxwell, 1994). Therefore, to avoid an increasingly narrowing experience for children visual strategies should:

- not exclude vocal exchanges and view these as a support and complement to verbal approaches;
- be seen as a temporary support mechanism used to help a child to accommodate to a specific social situation; this is reduced as the child’s skills grow;
- be used with awareness that not all visual approaches will work for every child and that a range of approaches might need to be tried to establish the most effective;
- continue to be used alongside contextual strategies that target factors outside the child.

### Application of visual approaches

Social impairments associated with inappropriate behaviours, such as screaming, undressing in public and masturbating can be a significant challenge for both school and parents. Less apparent difficulties, such as individuals saying or doing things, whilst not being inherently inappropriate, can nevertheless still be distressing for individuals when they occur in an inappropriate context. These issues perhaps result from difficulties with empathy, social understanding, spontaneous communication and reciprocity. Visual approaches can take the form of pictures of gestures, drawings and photographs and are often accompanied by vocal cues, prompts or exchanges. Tissot and Evans (2003) attempted to categorise visual approaches into movement-based systems and material-based systems. Movement-based systems are associated with sign language and gestures. Material based systems include programmes that use pictures cards, drawings and other visual cues. Table 1 shows examples of the visual approaches most commonly found in the literature.

Table 1 suggests two further ways to categorise visual approaches. First, it is possible to categorise visual approaches based on who the target audience is, i.e. whether the approach is targeted at verbal or non-verbal children. Second, visual approaches can be categorised in terms of the intended strategic aim, that is, whether the aim is to promote appropriate social communication, social understanding, or interaction.

### The Rules Grid

The Rules Grid was developed by Marcus Thornhill, whilst working for many years in a specialist educational provision for children with autism. Later, working as an
<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
<th>Aim</th>
<th>Target group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture Scripts (Groden &amp; LeVasseur, 1995; Hodgdon, 1995)</td>
<td>Illustrating situations that a child has difficulty with, accompanied by guidance on what to do in that situation</td>
<td>To help children adapt to a social situation</td>
<td>Verbal and non-verbal children</td>
</tr>
<tr>
<td>Social Stories (Gray, 1995)</td>
<td>Four to six sentences that describe factual information about a social situation, the possible reaction of others and directive statements of desired emotions and/or behaviour</td>
<td>To promote social interaction and adaptation to social situations</td>
<td>Verbal and non-verbal children who can read text</td>
</tr>
<tr>
<td>Video feedback (Kern, Wacker, Mace, Dunlap, &amp; Komrey, 1995)</td>
<td>Individual’s interactions are videoed and then played back during individual coaching to help the individual develop new skills</td>
<td>To promote social interaction and communication</td>
<td>Verbal and non-verbal children</td>
</tr>
<tr>
<td>Comic Strip Conversations (Gray, 1994)</td>
<td>Simple drawings and thought bubbles. Colours can be used to display and highlight feelings as well</td>
<td>To illustrate the actions, feelings, thoughts and intentions of those involved in a particular social situation</td>
<td>Verbal children who can read text</td>
</tr>
<tr>
<td>Picture Exchange Communication System (PECS) (Bondy &amp; Frost, 1994) and other augmentative communication approaches</td>
<td>Signs, pictures, symbols or written words are used as an alternative to, or as a precursor of, speech</td>
<td>To facilitate and promote communication</td>
<td>Verbal and non verbal children</td>
</tr>
<tr>
<td>Visual timetables (Schopler &amp; Mesibov, 1995)</td>
<td>Pictures or symbols are displayed horizontally or vertically to show a sequence of activities to a child</td>
<td>To promote sequencing, reduce anxiety and to communicate information and clarify expectations</td>
<td>Verbal and non verbal children</td>
</tr>
<tr>
<td>Sign language (Kieman, 1983)</td>
<td>Hand gestures are used to symbolically communicate meaning</td>
<td>To facilitate communication</td>
<td>Verbal and non-verbal children</td>
</tr>
<tr>
<td>Written prompts (Kistner, Robbins, &amp; Haskett, 1988)</td>
<td>Verbal prompts are supported with written prompts (verbal prompt: “do you want?” written prompt: “want cookie”)</td>
<td>Improve responses to questions</td>
<td>Verbal children who can read text</td>
</tr>
</tbody>
</table>

(Continued.)
<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
<th>Aim</th>
<th>Target group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Cards (Gragnon, 2001)</td>
<td>Visual aids that incorporate a student’s special interest(s) to teach appropriate social interactions. The Power Card presents the pupil’s “hero” or special interest solving a problem with a suggestion of how the pupil might use that same strategy to solve a problem for themselves</td>
<td>To teach problem solving skills and how to adapt to social situations</td>
<td>Verbal children who can read text</td>
</tr>
<tr>
<td>Facilitated Communication (NAS, 1994) and communication boards (Siegel, 1996)</td>
<td>Children are supported so they can point to a communication board or keyboard. Communication aids can be two dimensional using pictures or three dimensional using objects</td>
<td>To promote communication</td>
<td>Verbal and non-verbal children. Children who can read</td>
</tr>
</tbody>
</table>
educational psychologist he continued to develop the instrument and introduced it to the Educational Psychology Service.

The Rules Grid is a materials based approach that aims to make the complexity of social situations manageable and to facilitate appropriate social communication, understanding and interaction. The Rules Grid can be applicable to children who have either verbal or non-verbal communication. The Rules Grid captures both the “social rule” and the “context” in which it is expressed through using a matrix or grid. The contexts in which the social behaviour is exhibited are along one axis of the grid and the behaviours are along a second axis. Context could include the different individuals the target child encounters or the places they find themselves in. This, in turn, can be broken down into smaller units. This might include broad contexts such as home and school to finer grade contexts, such as in the playground before school starts, in the classroom, outside during break times and end of the school day. The behaviours are represented by the operationalisation of a social rule. A typical social rule might be “when speaking I use language appropriate to the context I am in”. This will be operationalised by identifying possible phrases, e.g. “hello”, “I like you”, “I love you” or “*** off”. This will perhaps become clearer with the aid of an example (see Table 2). The following process has been found to be useful in constructing the Rules Grid:

1. Through observation and discussion establish a challenging area and the social rule with which the individual is having difficulty.
2. Break the social rule down to meaningful descriptions of behaviours/actions. This will create an operational definition by explicitly stating the rule and how it is modified by different contexts.
3. In collaboration with the individual construct the Rules Grid.
4. Once the Rules Grid has been completed it should be available to the student across a range of environments taking account of the need for confidentiality as appropriate (e.g. in folder, stuck on their desk, displayed within classroom).
5. The Rule Grid should be regularly reviewed with all relevant participants.

Case study
Ryan (not his real name) was referred to the Educational Psychology Service because of adult concern that he was engaging in inappropriate “sexualised behaviour” that was occurring on a weekly basis. It was reported that this was leading to Ryan being increasingly isolated from his peers. Ryan was a Year 6 pupil, who had a statement of Special Educational Needs because of significant social communication and interaction difficulties. Additional information was obtained through observations of Ryan and discussion with Ryan, his parents and the class teacher to obtain a rich picture of the presenting concerns. Recurring themes during discussions with relevant adults were concerns about the protection of other children and Ryan’s vulnerability. The involvement of carers at all stages of the process is important as they have a key role in building resilience and shaping behaviour (DOH, 2006).

Ryan said that he had lots of friends but that they did not always talk to him, adding that he did not know how to make friends and said that it was a “secret trick”. In this initial meeting, Ryan responded very well to the use of drawing and symbols to aid communication, which suggested that he might also respond well to a more formal visual approach.
Table 2. Ryan’s rule grid.

<table>
<thead>
<tr>
<th>Types of touch</th>
<th>Mum</th>
<th>Dad</th>
<th>Teacher</th>
<th>School friends – boys</th>
<th>School friends – girls</th>
<th>Strangers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shake hands</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes (like when crossing road)</td>
<td>Yes</td>
<td>Yes (girls cross the road with girls)</td>
<td>No</td>
</tr>
<tr>
<td>Holding hands</td>
<td>Yes</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No (girls cross the road with girls)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Rubbing head</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Hug</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Touching/rubbing arms/shoulders</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No (unless touching arm to play tig)</td>
<td>No (unless touching arm to play tig)</td>
<td>No</td>
</tr>
<tr>
<td>Touching/rubbing leg</td>
<td>Sometimes</td>
<td>Sometimes</td>
<td>No way</td>
<td>No way</td>
<td>No way</td>
<td>No way</td>
</tr>
<tr>
<td>Kissing</td>
<td>Yes</td>
<td>Yes</td>
<td>No way</td>
<td>No way</td>
<td>No way</td>
<td>No way</td>
</tr>
<tr>
<td>Moving someone’s hand</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Touching someone’s belongings</td>
<td>No (unless permission given)</td>
<td>No (unless permission given)</td>
<td>No (unless permission given)</td>
<td>No (unless permission given)</td>
<td>No (unless permission given)</td>
<td>No</td>
</tr>
<tr>
<td>Touching someone’s privates</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Standing too close (body touching)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
The result of this initial assessment led to the inappropriate “sexualised behaviour” being operationalised as inappropriate touching, as opposed to sexually abusive behaviour which has been defined as:

… any sexual interaction with person(s) of any age that is perpetrated (1) against the victim’s will, (2) without consent or (3) in an aggressive exploitative, manipulative or threatening manner. (Ryan & Lane 1997)

The inappropriate touching included rubbing himself against peers in front of him while standing in line, and touching peers’ bottoms. Ryan and the educational psychologist worked together to construct the Rules Grid by identifying types of touch and individuals in his life (see Table 2).

The conversation to draft the Rules Grid explored the types of touch that are appropriate with different individuals. With support, Ryan identified the categories of individuals and the types of touching. In the Rules Grid the social rule can be qualified using the phrase “sometimes”. This device will be more applicable to some children rather than others, depending on how much ambiguity the individual can manage. An alternative approach is to give exceptions to a rule. This can be achieved by adding the phrase to a rule, for example, “unless touching to play tig” to an appropriate square in the grid.

A copy of the grid was given to Ryan, his teacher and his parents. Ryan’s parents and teacher were asked to go through the grid with him. It was very evident that the Rules Grid places Ryan within a matrix of permissible and non-permissible behaviours but did little to protect Ryan. A second Rules Grid (see Table 3) was developed with the aim of developing Ryan’s awareness of his personal boundaries. This time

<table>
<thead>
<tr>
<th>Types of touch</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shake Ryan’s hands</td>
<td>Mum, dad, sister, teachers, Scouts, boys in class</td>
<td>Strangers</td>
</tr>
<tr>
<td>Holding Ryan’s hands</td>
<td>Mum, dad, sisters, scouts, boys and girls in class</td>
<td>Strangers</td>
</tr>
<tr>
<td>Hugging Ryan</td>
<td>Mum, dad sister</td>
<td>Strangers, boys and girls in class</td>
</tr>
<tr>
<td>Touching/rubbing arms/shoulders</td>
<td>Sister, mum and dad</td>
<td>Strangers, boys and girls in class</td>
</tr>
<tr>
<td>Touching/rubbing Ryan’s leg</td>
<td>Sister (when playing the right kind of game), mum and dad</td>
<td>Strangers, boys and girls in class</td>
</tr>
<tr>
<td>Kissing Ryan</td>
<td>Mum, dad, sister</td>
<td>Strangers, boys and girls in class</td>
</tr>
<tr>
<td>Moving Ryan’s hand</td>
<td>Nobody (unless emergency or with permission)</td>
<td>Nobody</td>
</tr>
<tr>
<td>Touching Ryan’s belongings</td>
<td>Nobody unless permission</td>
<td>Nobody</td>
</tr>
<tr>
<td>Touching Ryan’s privates</td>
<td>Nobody (unless Ryan is unwell)</td>
<td>Nobody</td>
</tr>
<tr>
<td>Standing too close to Ryan (body touching)</td>
<td>Nobody</td>
<td>Nobody</td>
</tr>
</tbody>
</table>
Ryan was asked to say what type of touch it was appropriate for him to receive from others.

The work on the Rules Grid ran parallel to other work that helped the school understand the nature of the presenting concern using the Aim Framework for the assessment of adolescents who display sexually harmful behaviour (Griffin & Beech, 2004). It is recognised that a comprehensive approach to the presenting issue would also need to include a combination of reducing risk and building resilience (DOH, 2006). Bonner (2000) has argued that there are important differences between child and adult sexually inappropriate behaviour which suggests that it could be easier to modify children’s behaviours, especially before ingrained habits are developed. The Rules Grid, with an emphasis on the micro management of behaviour change, could be part of a programme to modify emerging habits. The application of the Rules Grid in this case study was based on the hypothesis that the inappropriate touching resulted from an incomplete understanding of social rules and once these rules had been clarified the behaviour would be easier to shift. Given the sensitive nature of the targeted behaviour, it was imperative to take steps not only to ensure confidentiality but also to ensure that Ryan did not get labelled and stigmatised through engaging in the intervention.

**Outcomes**

A six week follow-up with parents and school staff reported that there had been no reported or observed incidents of inappropriate touching. The inappropriate touching appeared to have ceased almost immediately with the introduction of the Rules Grid. It was reported that Ryan was rebuilding relationships with his peers and could be seen interacting with a larger number of children. Ryan’s parents reported that they had found the Rules Grid as a useful way to have a conversation with Ryan about the presenting concern.

It is recognised that within this case study it is difficult to establish and disentangle the causal mechanisms. The interventions included constructing the Rules Grid, obtaining parental and school staff support and involvement, bringing the previous secret and poorly discussed behaviour out into the open and having Ryan discuss the behaviour with an outside professional. In fieldwork, it is difficult to establish the contribution each element of the intervention made to the outcome. Future research could therefore be designed to help clarify the importance of each of the causal mechanisms.

**Ethical questions**

The Rules Grid falls within the broader normative agenda. That is, the Rules Grid aims to identify desired behaviour and is an instrument intended to facilitate behavioural change. This opens up ethical questions that would need to be explored but are beyond the remit of this article. It could be argued that the Rules Grid approach is overly prescriptive but, arguably, this is defensible in the situation described earlier and such ethical judgements should be taken in each individual case. It is also recognised that there is the potential for the Rules Grid to be perceived as reductionist in its attempt to simplify complex social situations into basic grids. However, this could be an instance when the abstraction and simplification of social situations could enable an individual to acquire a basic understanding of the situation that they can later make richer.
**Recommendations**

This article suggests that the Rules Grid could be a useful addition to the range of visual tools that educational psychologists use to support children who have social communication and interaction difficulties. This was achieved by outlining its application to a single case study. The Rules Grid has a flexibility that would enable it to be applicable to a range of issues and individuals who have impairments of language, communication or understanding. It is possible to adapt the Rules Grid to be used with children who are not yet reading by using symbols instead of words. The Rules Grid could also form the basis of a more in-depth study of an individual child or a group of children overtime.

**References**


