Advice on the use of gestures in presentation skills manuals: alignment between theory, research and instruction

Adelia Carstens

Unit for Academic Literacy, University of Pretoria, Pretoria, South Africa

https://orcid.org/0000-0003-1518-6170 | adelia.carstens@up.ac.za

ABSTRACT

There appears to be a weak alignment between manuals on using hand gestures in oral presentations, theoretical sources on gesture production, and empirical studies on dimensions of gesture processing and use. Much of the advice in presentation skills manuals centre on prohibitions regarding undesirable postures and gestures. Furthermore, these sources tend to focus on the intentions, feelings and mental states of the speakers as well as the psychological effect of gestures on the audience. Theoretical sources, on the other hand, typically emphasise the relationship between speech and gestures, and the mental processing of the latter, especially representational gestures. Quasi-experimental empirical research studies, in turn, favour the description and analysis of iconic and metaphorical gestures, often with specific reference to gesturing in the retelling of cartoon narratives. The purpose of this article is to identify main areas of misalignment between practical, theoretical and empirical sources, and provide pointers on how the advice literature could align guidelines on gesture use with theory and research. First, I provide an overview of pertinent gesture theories, followed by a discussion of partially canonised typologies that describe gestures in relation to semiotic gesture types, handedness (left, right or both hands), salient hand shapes and palm orientation, movement, and position in gesture space. Subsequently, I share the results of a qualitative analysis of the advice on gesture use in 17 manuals on presentation skills. I then report on an analysis of the co-speech gestures in a corpus of 17 video-recorded audio-visual presentations by students of Theology. The article is concluded by proposing an outline for advice on gestures that is based on a considered integration of traditional advice in guide books and websites, theory, and empirical research.

Keywords: body language; deictics; gesture; iconics, metaphorics; beats; presentation skills.

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Introduction

The notion of 'body language' has recently received renewed attention in the popular media, mostly focused on public appearances of royals, celebrities and politicians. When analysing the content of the many websites that analyse their gaze, posture and gestures (compare, among others, Thomas & Lemire 2018; Young 2018), it becomes clear that the focus is on body language as a carrier of psychological meaning, rather than representational or referential meaning.

In light of the attention currently paid to the body language of public figures, the experimental findings of the psychologist Albert Mehrabian during the early seventies (Mehrabian 1971) seem plausible. Mehrabian found that that 55% of communication can be attributed to body language, 38% to tone of voice, and only 7% to the words. Some of the popular books on body language still quote Mehrabian's research, and even add supporting evidence. Compare, for example the following advice by Alan and Barbara Pease, well-known presenters of TED talks on body language in presentations:

> Our analysis of thousands of recorded sales interviews and negotiations during the 1970s and 1980s showed that, in business encounters, body language accounts for between 60 and 80% of the impact made around a negotiating table and that people form 60 to 80% of their initial opinion about a new person in less than four minutes (Pease & Pease 2004:9-10).

Mehrabian's findings, as well as the figures mentioned by Pease and Pease, relate to business interactions, rather than oral presentations to an audience. Furthermore, the figures seem to pertain mostly to the communication of a psychological state, feelings or attitudes towards others (Bienvenu 2000:4). Many websites have outright debunked Mehrabian's research findings (compare, for example, Psyblog 2007; Psychology Today 2009). However, some internet sources still quote Mehrabian as an authority. Lee (2017), for example, states categorically that '[c]ommunication is 93% non-verbal and only 7% verbal, while all the rest is expressed through body language'; but then merely quotes a few 'helpful hand gestures to keep your audience engaged', and hands out a few tips on which gestures not to use. It is noteworthy that over 40% of the advice on body language provided in the sources I surveyed consists of ad hoc prohibitions of 'incorrect' postures, distractive mannerisms, repetitive meaningless gestures, and undesirable hand shapes and palm orientations (personal analysis of 17 manuals).

Theoretical sources on body language impose a completely different frame on gestures

than books and websites on presentation skills. The theoretical literature, and the empirical literature building on these theories, almost without exception analyse gestures in relation to the accompanying speech, as indicated by the models or 'architectures' outlined by De Ruyter (2007), which will be discussed later. Furthermore, although gestures are considered to have global-synthetic rather than compositional meaning (McNeill 1992:20), the structure of gestures receives focused attention in the theoretical literature. From a functional point of view, the emphasis in the theoretical literature tends to fall on purposes of gestures other than the affective – in particular the representative and referential. Finally, the examples provided in theoretical sources often derive from quasi-experimental research that involves the retelling of stories. For instance, the majority of McNeill's gesture examples were recorded when the speaker was shown a stimulus – a film, animated cartoon, or comic book – and then after this exposure the speaker immediately had to recount the story from memory, while the performance was videotaped (McNeil 1992:77). In Beattie and Shovelton's studies, as described by Holler and Beattie (2002:33), the respondents were interviewed after either having seen video clips of single iconic gestures, which were extracted from cartoon narratives from other participants, or after only having heard the speech of the corresponding speech clauses without seeing the gesture. Kita and Özyürek (2003) quote narrations from Sylvester and Tweetybird cartoons in their analysis of iconic gestures.

In this article I argue, on the basis of an overview of the theoretical literature on gestures, an analysis of 17 manuals on body language and/or gesturing, and an analysis of video-recorded student presentations, that there is a misalignment between theory, practice and advice on gestures. On the basis of my analyses, I offer suggestions on how advice on gesture use in the public speaking literature can be improved to increase their rigour, systematicity, functionality and authenticity. Before I provide an overview of gesture theories and typologies, a working definition of 'gesture' is presented and justified.

Definition of 'gesture'

The term 'gesture' has been used to refer to a range of different phenomena, including head nods, facial expressions, making verbal compliments (Seyfeddinipur 2011:1480) and how a person 'carries the body' (Kendon 2004:8). The latter usually refers to distracting habitual or involuntary self-adapting or body-focused movements often mentioned in the self-help literature, such as hair-patting, self-grooming, clothing adjustments and the repetitive manipulation of objects, such as rings, keys and coins

(Kendon 1980:207; 2004:8), as well as 'forbidden' postures, such as putting both hands in your pockets, crossing your arms, gripping one arm with the other, or standing in the 'fig leaf position'.

In the scholarly literature, however, the word 'gesture' is used to imply that the actor has some voluntary control over a movement, and what it intends to convey. Gestures are therefore 'actions' demonstrating 'features of manifest deliberate expressiveness' (Kendon 2004:14,15), which involve the hand and arm movements humans make when they speak (Seyfeddinpur 2011:148; Roth 2001:368). According to this definition, the notion of 'gesture' excludes meanings related to posture or symptoms of the individual's mood or feelings, and thus the latter will not be dealt with in the theoretical overview below.

Towards a theoretical understanding of gesture

Much of the theoretical literature on gestures deals with how they are cognitively processed. De Ruiter (2007) distinguishes three main 'architectures' that account for different viewpoints on the processing of manual gestures: the *Window Architecture* (Beattie 2003) assumes that gestures come straight from the mind, without mediation by language. *Language Architecture* assumes that the language a person speaks affects their gesture. Models that are subsumed under this architecture (Kita & Özyürek 2003) base their claims on empirical evidence that the ways languages encode information have consequences for the shape of the gestures produced. *Postcard Architecture* implies that words, speech and gesture arise together from an underlying propositional representation that has both visual and linguistic aspects (Tenjes 2001:317). Kendon (1980; 2004) has consistently emphasised the unity of speech and gesture. He is supported by another pioneer on gesture studies, David McNeill, who contends that gestures are so closely linked to spoken language in time, meaning, and function that a spoken utterance and its co-speech gestures can be regarded as different sides of 'a single underlying mental process' (McNeill 1992:1).

De Ruiter's *Postcard Architecture* resonates with thinking in recent and current studies in multimodality, as theorised by proponents of translanguaging and socio-semiotics, who purport that there are no distinct linguistic and other semiotic systems in the human brain, but rather one integrated repertoire of linguistic and semiotic practices from which communicators constantly draw (Garcia 2009; Garcia & Li 2014; Canagarajah 2011; Mazak 2017). Proponents of multimodal social semiotics claim that sign makers make meaning by drawing on a variety of modes that always combine with others in 'ensembles' (Kress & Van Leeuwen 1996; 2001; Kress 2010). The term 'ensemble' for

denoting combinations of modes has also been embraced by gesture scholars such as Kendon (2004:127), Ladewig (2011:4), and Fricke (2013:737). Each mode in an ensemble has particular affordances. The linguistic system is governed by rules of grammar and word-formation, while gestures are 'global-synthetic' in that 'the whole is not composed out of separately meaningful parts. Rather, the parts gain meaning because of the meaning of the whole (McNeill 1992:20).

Although some scholars claim unequivocally that hand gestures affect both the people who produce them and the people who see them (Novack & Goldin-Meadow 2017:381), there is still no general consensus on whether gestures primarily explicate the thought processes of the speaker, or intentionally communicate information to the audience or interlocutor, or both. For the purpose of this article, it is not necessary to pronounce a verdict on this issue. It is deemed sufficient to recognise that gestures constitute part of multimodal ensembles, in which oral discourse is the primary mode of communication; that gestures do have communicative value irrespective of whether they are used intentionally or unintentionally; and that people use gestures in accordance with their communicative goals, although different speakers often use different gestures to express the same meaning (Müller, Bressem & Ladewig 2013:713).

Despite the different views on how speech and gestures are processed, the majority of scholars today view language and gestures as semiotic systems of which the signs have form and meaning. It is also generally accepted that gesture studies need their own vocabularies to talk about their mode-specific formal characteristics. Below, an overview is given of the most cited gesture typologies and the nomenclatures that have been suggested for describing some of the formal characteristics.

Semiotic gesture typologies

A number of semiotic (some scholars use the term 'semantic') gesture typologies have seen the light since the first scholarly literature on manual gestures in the modern era appeared in the 1940s. One of the well-known typologies is the so-called 'Kendon's continuum', which can be schematised as follows:

Gesticulation | Language-like gestures | Pantomimes | Emblems | Sign languages

As one moves from left to right '(1) the obligatory presence of speech declines, (2) the presence of language properties increases, (3) idiosyncratic gestures are replaced by socially regulated signs' (McNeill 1992:73).

According to Roth (2001:370) researchers concerned with educational issues usually

base their work primarily on the typology proposed by McNeill (1985; 1992), who distinguishes four types of spontaneous gesture that combine with speech: iconics, metaphorics, deictics and beats. Certain authors distinguish a fifth class of gestures, namely *emblems* (Efron 1941; Ekman & Friesen 1969).

Cienki (2004:4) describes an alternative tripartite typology popularised by Müller (1998), consisting of *discourse gestures, performative gestures* and *referential gestures.* According to this typology, *discourse gestures* structure an utterance, such as beats for emphasis, or counting out the points a speaker is making on the fingers; *performative gestures* enact speech acts, such as requesting something with a hand held out open, palm up; and *referential gestures* refer to something concrete or abstract.

I find it useful to add discourse gestures as a sixth class to McNeill's typology, but prefer to use it only for gestures that act purely as discourse markers. Thus, I do not regard beats, of which the primary function is phonetic-temporal, as discourse gestures. Below a brief characterisation is given of five of the six main types of the adapted typology (discourse gestures have been discussed in sufficient detail), with examples to elucidate the descriptions.

Iconics are gestures with a close formal relationship to the content of the speech (McNeill 1992:12-13; Tenjes 2001:306). They are also referred to as 'representational gestures' (Roth 2001:370) because they bear a perceptual relation with concrete entities, spatial relations and events (Roth 2001:370; Tenjes 2001:308). Iconic gestures depict objects and/or movements (Seyfeddinipur 2011:150). Kita and Özyürek (2003) quote an example that involved the retelling of the story from a Sylvester and Tweetybird cartoon. Sylvester swallows a bowling ball and rolls down the street with the ball inside its belly. While saying 'He rolls down the street into a bowling alley', and coinciding with the underlined phrase, the narrator performs a spiralling motion with the index finger of the right hand, while the hand moves diagonally downward toward the speaker's right.

Metaphorics are similar to iconics in that they are also representational, but the content presents an abstract idea rather than a concrete object or event (McNeill 1992:14; Tenjes 2001:306). During the metaphoric process an abstract concept, either an entity or movement, is depicted visually (Seyfeddinipur 2011:150). The relationship with the represented idea is not based on a similarity with external reality; it is created by the mind (McNeill 1992:145). An example is the speech phrase 'the meeting went on and on', accompanied by one or both hands indicating a rotating motion (Tenjes 2001:305); thus a continuous event in time is depicted as an iterative motion in space.

Deictics can be equated with pointing (McNeill 1992:18). They locate aspects of the content of the speech in the space surrounding the narrator (Tenjes 2001:306). Tenjes (2001:312) divides them into three categories: (1) pointing to actual objects in the space that surrounds the participants; (2) pointing to objects that have a physical location, but are not immediately present; (3) things that have no object status or location; thus a metaphoric use of space in which abstract concepts are given a spatial position, and this space is indexed by pointing (McNeill 1992:173). According to De Ridder (2007), 'pointing gestures have conventionalized form-meaning mappings shared within a given linguistic community'. However, I have to disagree with this statement – the research conducted for this paper does not support full conventionality of pointing gestures.

Beats are rhythmic movements of the arm, hand or fingers, which lend a temporal or emphatic structure to communication (Roth 2001:370), for example up and down or back and forth (McNeill 1992:15). Beats are regarded to be void of semantic content; and some of the literature relate them to the pragmatic rather than the semantic content of speech (Holler & Beattie 2002:31).

Emblems are conventionalised, formulaic gestures with culturally defined verbal translations (Holler & Beattie 2002:31; Cienki 2008:2; Seyfeddinipur 2011:149), for example the 'OK' gesture, which in certain communities (e.g. the US) is made with the thumb and forefinger forming a ring shape by touching the fingertips, and in other communities indicated with the thumb extended upward vertically and the remaining fingers curled (South Africa). Desmond Morris (2015) gives a full account of the emblematic gestures occurring across the world, with a description of each of the gestures in terms of four parameters: Meaning, Action, Background and Locality.

Figure 1 is a schematic summary of McNeill's (1992) typology, into which Tenjes' (2001) refinement of deictic gestures, and Müller's (1998; 2004) discourse gestures have been incorporated:

From a formal point of view, gestures are usually described in terms of their 'syntax' or structure, as well as their formal configurations and typical movements.

Gesture syntax

Gestures typically consist of three gesture phases: *preparation*, *stroke*, and *retraction*. They begin from a position of rest, move away from this position and then return to rest (Roth 2001:369). The stroke phase instantiates the peak or core of the gesture, and denotes the function or meaning of the gesture (McNeill 1992:375). In fact, it has

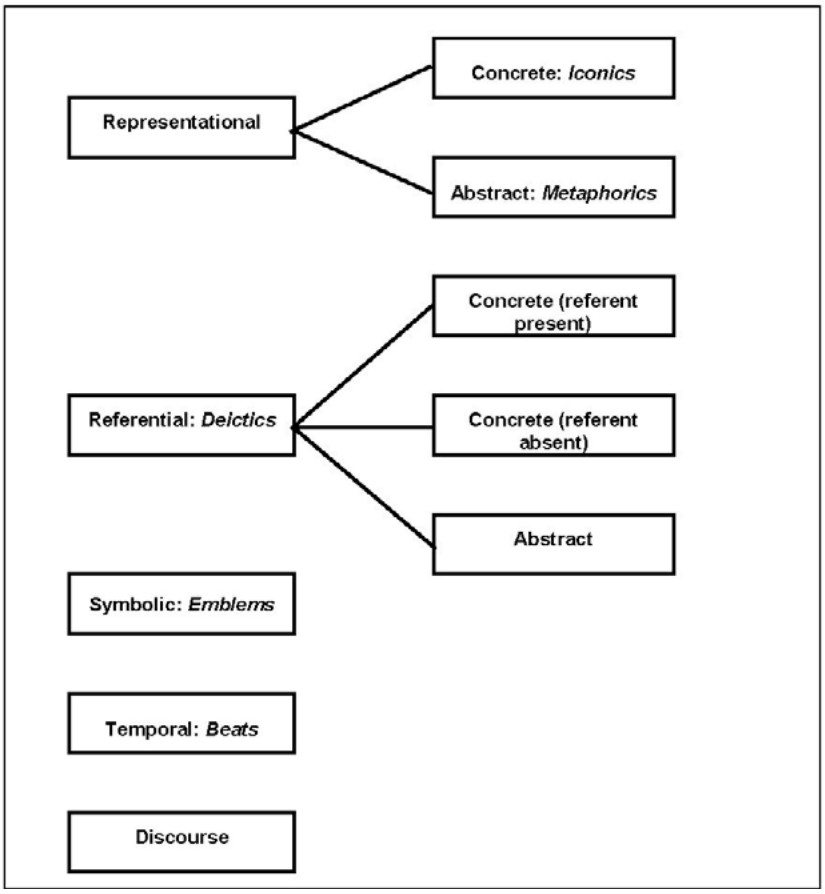

FIGURE Nº 1

Customised semiotic gesture typology.

been shown that 'in 90% of speech-gesture pairs, the stroke coincides with the relevant speech segment, which might be a single lexical item or a phrase' (Özyürek 2017:40). This is true for iconics, metaphorics, deictics and emblems. Beats have only two movement phases (in/out, up/down, etc.) that are repeated several times (Kendon 1992:82).

Gesture configuration and kinesics

Similar to other semiotic systems, gestures have a set of recurring formational (configuration and orientation of the hand) and kinesic features (Müller 2004:235). The five parameters according to which representational gestures are typically described include handedness (left, right or both), hand shape (sometimes also including the fingers), orientation (of the palm and fingers), movement (which includes direction and shape or trajectory of the movement) and position in gesture space (McNeill 1992:81; Syfeddinipur 2011:152; Müller, Bressem & Ladewig 2013:1104).

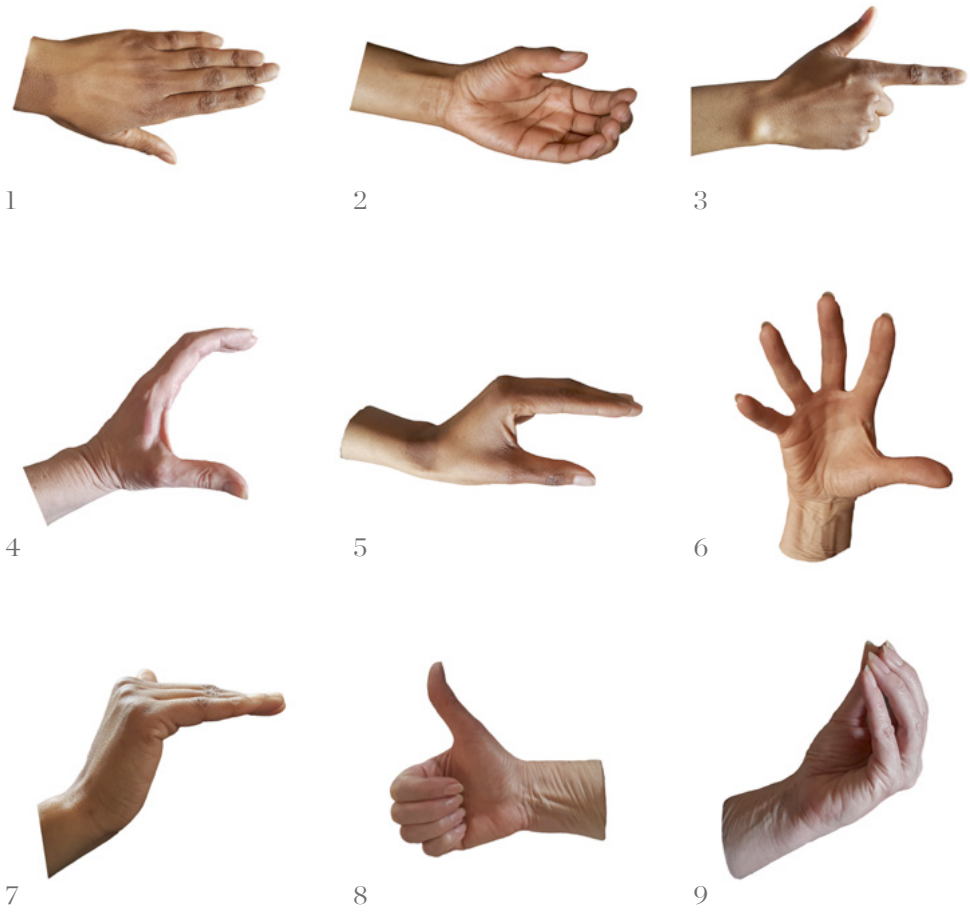

FIGURE **Nº 2**

Salient hand shapes in the Theology Students Gesture Corpus (photographs of my own hands and the hands of Sannah Gomba by André du Plessis): 1. open hand; 2. shell/cup; 3. pistol; 4. C shape; 5. flat C; 6. star; 7. rectangle; 8. extended thumb; 9. finger bunch.

Many researchers of gesture use American Sign Language to categorise and represent *hand shapes* in co-speech gestures (McNeill 1992:86-88). However, as pinpointed by Mittelberg (2006:103), it is 'difficult to match relatively loose hand shapes with clearly defined ASL signs'. Mittelberg suggests that gesture researchers should search the gesture data for prominent hand shapes and movement patterns, and establish a data-driven typology. This approach was followed by Müller (2004) when describing variants of the palm up open hand family of gestures. An abbreviation for each gesture type was formulated on the basis of the openness and orientation of the palm, plus a 'name' and an indication of which hand was used, for example puoh-tray-lh/rh/bh: 'hand as flat surface, supporting imaginary objects'; and puoh-cup-lh/rh/bh: 'hand

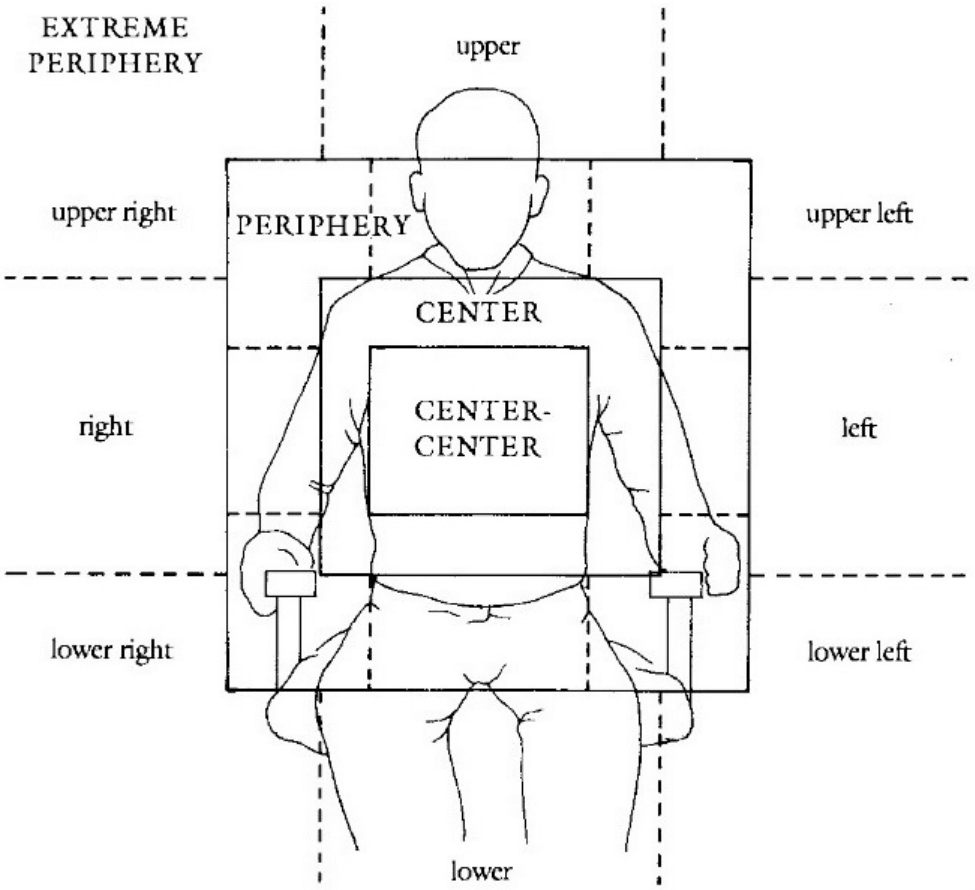

FIGURE **Nº 3**

The gesture space (McNeill 1992:86).

with palm up and curled fingers forming a receptacle'. For my analyses, I used a typology based on an analysis of the data in the Theology Students Gesture Corpus (henceforth TSGC). The salient hand shapes in this corpus were the open hand, cup/shell, pistol, C-shape, Flat C-shape, star, rectangle, extended thumb and finger bunch, as depicted in Figure 2. The *configuration/orientation of the fingers*, if not included in the hand shape (such as pistol or finger bunch), is described separately, such as: fingers curled, fingers spread.

Gestures that describe *movement* display both a direction and a trajectory. The direction can be upward, downward, or lateral/horizontal (leftward or rightward), and the trajectory can be straight, curved, rotation, and so on. Owing to the large variety of movement types found in the TSGC I do not offer a typology of movement in this article. Movement is merely described as a component of specific gestures that have

been categorised according to the semiotic typology (Figure 1).

McNeill (1992:86-87) divides the *gesture space* into concentric squares, as indicated in Figure 3.

The *Centre-Centre* is the section directly in front of the chest; the *Centre* is the section surrounding the Centre-Centre, which stretches from the shoulders down to the waist, and on both sides of the body to approximately the elbow; the *Periphery* is the section stretching from above the ears down to the knees, and between the two hands if they are imagined to rest on the arm rests of a chair; and the *Extreme Periphery* surrounds the body, and is, like the *Periphery*, divided into upper, lower, right and left.

Next, I provide an analysis of the advice on gesture use in 17 manuals on presentation skills.

Analysis of advice on gesturing in manuals on presentation skills

Generic advice in the 17 guidebooks/websites on public speaking that were analysed centre on three themes: gesture strength, gesture size, and gesture position. The advice typically includes directives to use strong, deliberate, steady, purposeful and large gestures. Only one source advises presenters to vary the size of the gestures according to the size of the audience (Gallo 2010) and two sources encourage presenters to use gestures prolifically (Gallo 2010; Murphy 2015). Murphy quotes research that the most popular TED talks feature speakers who use their hands the most. Another piece of advice given by a number of manuals is to remain in the 'strike zone' (between the shoulders and the waist) when gesturing (Becker & Becker 1994: Asher 2001; Belknap 2007; Murphy 2015), which is what McNeill refers to as the Centre. Asher (2001) and Lee (2017) instruct presenters to always gesture forward, never backward.

A handful of manuals link hand shape, palm and finger orientation, position in space and movement to a particular purpose. However, the advice is rather ad hoc, and in some cases even contradictory. Below is an overview of the gesture forms and their interpretations mentioned in the analysed sources:

- *Open hands, palms facing upwards:* 1. To build your audience's trust and put them at ease (Pease & Pease 2004; Kagan 2006; Belknap 2015; Murphy 2015; Lee 2017); 2. Combined with *shrugging your shoulders:* To show that you do not know the answer (Pease & Pease 2004; Van der Laaken & Van der Laaken 2007);

- *Open hands, both palms facing downward:* 1. Protecting immediate authority (Pease & Pease 2004); 2. May be slightly threatening and direct the audience to be submissive (Lee 2017);

- *Open hands, both palms facing forward:* signal group identity (e.g. in the charismatic Church movement) (Kagan 2006);

- *Dominant hand extended forward with palm turned sideways* (in handshake position): reaching out to your audience (to persuade them to meet you half-way) (Asher 2001; Lee 2017);

- *Extend open hands sideways*: indicate magnitude (Krannich 2005);

- *Hold up an appropriate number of fingers* (as a discourse marker): 1. To visualise numbers (Gregory 1990; Belknap 2015; Murphy 2015); 2. To emphasise main points (Gregory 1990; Becker & Becker 1994);

- *Count on your hands* (not indicated exactly how): to list key points (Van der Laaken & Van der Laaken 2007);

- *Raise alternating hands* (discourse marker): to mention two complementary or opposing ideas, and coincide with verbal expressions such as 'on the one hand … on the other hand' (Gregory 1990);

- *Touch forefinger with thumb to form a ring-shape:* 1. To portray yourself as 'thoughtful', 'goal-oriented' and 'focused' (Pease & Pease 2004); 2. To invite the agreement of the audience on a particular point (the 'OK' gesture) (Lee 2017);

- *Point*: 1. To add emphasis to your words; 2. To draw people's attention to something specific (for example to show something important on the screen) (Van der Laaken & Van der Laaken 2007); 3. To maintain contact with your audience (Kagan 2006); 4. (negative) Communicates aggression (Belknap 2015; Murphy 2015); 5. (negative) Serves as a symbolic club to beat listeners into submission (Pease & Pease 2004);

- *Raise fist*: signal group identity and get attention (e.g. signal of the Black Power movement);

- *Trace an outline in space* [with the hand or a finger]: clarify a message (Krannich 2005);

- *Steeple fingers* (palms facing each other, fingertips together, and pointing upwards): Indicate superiority and confidence (Siddons 2008; Lee 2017);

- *Palms together, fingers facing upwards* ('praying hands'): show a desire to persuade (Pease & Pease 2004);

- *Pinch with your forefinger and thumb*: to indicate a small object/entity (Murphy 2015).

The manuals typically focus on either the intention of the speaker (the illocution in speech act theory) or his/her state of mind, such as conveying self-confidence; showing focus and goal orientation; reflecting authority, indicating superiority, and indicating willingness to negotiate; or the influence that gestures have on the audience (the perlocution), such as building trust; putting the audience at ease; persuading the audience (inviting agreement), getting attention, creating solidarity, and maintaining contact.

Iconic form-function correspondences are alluded to by two sources, both of which list gestures that mimic concrete objects by means of the shape of the hand and fingers: pinching with the forefinger and thumb to indicate a small object/entity (Murphy 2015); and indicating a 'thin' object (possibly by moving the forefinger and thumb slightly apart) (Gallo 2010). Two gestures are mentioned that denote an abstract (metaphorical) concept: extending the open hands sideways to indicate magnitude or scope (Krannich 2005; Gallo 2010); and tracing an outline in space to clarify a message (Krannich 2005). The palm up open hand gesture is typically described in terms of its perlocutionary force, namely to build trust and put the audience at ease (Pease & Pease 2004; Kagan 2006; Belknap 2015; Murphy 2015; Lee 2017), or when combined with shrugging the shoulders, to show that you do not know the answer (Pease & Pease 2004; Van der Laaken & Van der Laaken 2007). In terms of its etymology, this gesture is a metaphor. In medieval times, it indicated that a person was not carrying any weapons, and therefore had nothing to hide (Belknap 2015). Through the years the meaning has been extended to 'presenting an abstract concept', 'expressing openness to receive some abstract entity', 'expressing the fact of 'not having anything to offer', and 'not knowing' (Müller 2004:237).

Five sources refer to using gestures as *discourse markers*, in particular to visualise numbers (Gregory 1990; Belknap 2015; Murphy 2015), list main/key points (Gretory 1990; Becker & Becker 1994; Van der Laaken & Van der Laaken 2007), counting on your hands (Van der Laaken & Van der Laaken 2007), and presenting opposing or complementary ideas (Gregory 1990).

Finally, a number of sources refer to *deictic* gestures (usually assuming that a pistol hand shape will be used). Pointing is regarded as functional by a number of sources, and as undesirable by others, owing to its purported negative connotations. From the discussion in the sources, it can be inferred that pointing is useful when the position of a concrete entity in the immediate context is indicated (Van der Laaken & Van der Laaken 2007; Belknap 2015) but undesirable (impolite or even aggressive) when directed at the audience when making a point, especially if the audience comprises of peers (and not subordinates) (Bienvenu 2000; Pease & Pease 2004; Belknap 2015; Murphy 2015; Lee 2017).

Manual writers are divided on whether gesturing should be spontaneous or planned and rehearsed. Eight of the surveyed sources advise speakers to use gestures that are natural or authentic (Mandel 1993; Morreale & Bovée 1998; Bienvenu 2000; McCarty & Hatcher 2002; Gallo 2010; Theobald 2011; Van der Laaken & Van der Laaken 2011; Belknap 2015), whereas six encourage planning and rehearsing gestures in advance (Morreale & Bovee 1998; Bienvenu 2000; McCarty & Hatcher 2002; Lee 2017; Krannich 2005; Belknap 2015). Some sources encourage both authenticity/spontaneity *and* planning. The idea of practice leading to automation is espoused by McCarty and Hatcher (2002:122). Krannich (2005:139) goes as far as suggesting that gestures should be exaggerated during initial practice sessions, after which the speaker should go back and practice a few times with what he/she regards as 'natural movement'.

The next section of the article describes the analysis of the TSGC in relation to gesture theories, with particular reference to a customised semiotics-based gesture typology (Figure 1), a corpus-based typology of hand shapes (Figure 2), position in gesture space (Figure 3), and the notion of handedness (left, right or both hands).

Gesture use in the Theology Students Gesture Corpus (TSGC): a case study

Methodology

The data on which the study is based consist of six hours of audio-visual presentations by students registered for the module Academic Literacy for Theology in 2017 at the University of Pretoria. Seventy-one students (17 groups comprising of four members each, except Group 2, which had only three members) participated in the research: 22 black females, 17 black males, 13 white females, 17 white males, one Indian female and one coloured male. The data generated by one group (no. 16) was discarded, as the presentation was completely off-topic. Each student provided voluntary signed consent to use their video-recorded presentation for research, as well as their demographic data and an electronic copy of the PowerPoint slides their group used during the presentation. Permission was also obtained for the Dean of the Faculty of Theology and the Registrar of the University to conduct the research, and the project was ethically cleared by the Research Ethics Committee of the Faculty of Humanities (GW20170821HS).

Each of the groups had to evaluate 10 church websites according to the criteria discussed in an academic article from their class readings (Waters & Tindall 2010),

capture their evaluations on an Excel spreadsheet, convert the responses to graphs, interpret the graphs, draw conclusions on how well these sites fulfilled the needs of visitors, and present their research orally, supported by a Microsoft PowerPoint slide-show. The Microsoft Excel template, which students had to submit, also required their student number, group number, home language and gender.

The video recordings took place on three consecutive Mondays in the seminar room of the Unit for Academic Literacy. A tutor studying towards a degree in Information Technology received training to video record the presentations. At the end of the group presentations on all three occasions the videos were saved on two computers, and uploaded to YouTube (private site).

The data (speech and gestures) were captured during three cycles: first, the speech captured by each video was extracted as written text from the subtitles automatically generated on YouTube, and exported to Microsoft Excel using the program Subtitle Edit. All the text, divided first into presentations and then into turns (individual presenters' contributions), was then copied into a Microsoft Word document, and checked for accuracy and correctness against the actual videos. The third cycle involved watching each of the videos again and performing three operations simultaneously: (1) determining the movements that qualify as gestures according to the definition provided above; (2) copying and inserting the image that corresponds to the stroke-phase of each gesture as a still image in the Microsoft Word document; and (3) enclosing the speech phrase that coincides with the gesture phrase in square brackets, and underlining the words that correspond with the stroke phase of the gesture.

A qualitative bottom-up approach was followed to detect forms and patterns in the gestures. Only those gestures were captured that were iconic, metaphoric, deictic, emblematic and discursive; and those that demonstrated 'manifest deliberate expressiveness' (Kendon 2004:15). A label from my customised typology was assigned to each gesture by making use of comment boxes on the Microsoft Word document.

Findings

The TSGC yielded a total of 223 gestures (according to the definition given above): 96 deictic, 23 iconic, 100 metaphoric, two emblems and two discourse gestures. The emblematic gestures included one instance of the thumbs-up gesture (Respondent 13.1), and one instance of the 'high five' gesture (two participants in group 6), which

FIGURE Nº 4

Abstract deictic gesture using extended thumb.

means cheering for an achievement. The discourse gestures were performed by one speaker (6.1), who explained the principle of 'ease of use' by emphasising the three dimensions of this notion through first placing the left thumb firmly on the right thumb, then the left thumb on the right little finger, and then the left thumb on the inside of four fingers of the right hand.

Eight (8.8%) of the 71 students produced 48% of the total number of gestures. They consisted of three black males, two white males, two black females and one white female. Twenty-seven per cent of the students produced no meaningful gestures (no gestures at all, or only beats). Although the beats were not systematically analysed, I observed that representational gestures and beats were not mutually exclusive. At least four respondents, on occasion, used beats in such a way that they morphed into weakly defined iconic or metaphoric gestures. Students who read their presentations from a cell phone screen or printed notes seldom used gestures, and if so, they used only beats. In the remainder of this section specific attention will be paid to deictic, iconic and metaphorical gestures.

FIGURE Nº 5

Concrete deictic gesture (referent absent) using an open hand.

Deictic gestures

A total of 96 deictic gestures were recorded, of which 66 were concrete gestures pointing to an entity in the immediate spatial context, 7 concrete gestures pointing to an entity that is removed from the immediate spatial context, and 23 abstract gestures pointing to entities existing in the minds of the gesturers. An example of abstract pointing is speaker 18.3 gesturing backwards with his left thumb, while saying: 'if they want information if they want to research about something they simply going to internet (.) they simply go to website which is very important (.) and then they they they they don't take it seriously to go back' (Figure 4).

Interestingly, open-hand pointing dominated. It featured in 67 of the 96 gestures (69.8%). An example of open hand pointing (concrete deixis: referent absent) is when speaker 18.4 utters the phrase 'Mount Zion Christian Centre is in Hammersdale', while pointing forward with his right open hand, fingertips facing the audience (Figure 5).

Then, while saying 'number four (.) which is Saint, Saint Andrews Presbyterian Church in Cape Town', he pointed into the right extreme periphery with his right open hand, palm facing the audience (Figure 6).

FIGURE **Nº 6**

Concrete deictic gesture (referent absent) using an open hand.

Pointing with an extended index finger (pistol-hand shape) accounted for only eight gestures in total (8.3%). Ten gestures used a cup- or shell-hand shape (10.4%). For the remaining deictic gestures, the following hand shapes were used: an extended thumb, with the other fingers curled (4), a loose finger bunch (3), a flat C-shape (4), and a hybrid between an open hand and a pistol shape (1). Fifty-six points (58.3%) were performed with the right hand, and 35 with the left (36.5%), while five were performed with both (5.2%). Thirty-six (38%) of the points took place in the centre space, while 62% were located in the periphery and extreme periphery.

Iconic gestures

Twenty-three iconic gestures were recorded. With one exception, namely mimicking a crying episode while saying 'If someone's getting baptised, they're crying', only features of *websites* were mimicked. Eleven iconic gestures depicted static elements of websites, while 11 referred to kinesic elements. The former includes a web page (2), logo (2), picture (1), heading (1), link (1), horizontal bar (1), tab (1), e-mail address (1), and bar on a bar graph (1). Speaker 2.2, for instance, used both hands, fingertips

FIGURE Nº 7

Concrete deictic gesture (referent absent) using an open hand.

facing each other, to indicate a relatively small object in the centre-centre space, when saying: 'and (.) I've compared it to Hatfield Christian Church. As you can see the the logo is very visible' (Figure 7).

Kinesic elements in the iconics subcorpus included scrolling down a web page or a document on a web page (7), typing a word/phrase into a search engine or including text during programming so that it shows on a web page (2), clicking around on a web page (1), and opening tabs on a web page (1).

Speaker 6.1 mimics a typing action by moving his hands horizontally, and simultaneously performing small up and down movements, while saying: 'as you can see on the picture (.) when I type into Google the name of the church you can see there's a picture of the church' (Figure 8).

When simulating objects and movements, the students who gestured demonstrated a 70% preference for using both hands (16/23). The open hand shape dominates (14/23 = 60.9%), followed by a shell/cup (3 = 13.1 %), flat C-shape (2 = 8.7%), rectangle (2 = 8.7%), C-shape (1 = 4.3%), and star (1 = 4.3%). Palm orientation, direction of

FIGURE Nº 8

Iconic gesture mimicking a typing action.

movement, and trajectory were so diverse that generalisation is hardly possible. Thirteen of the 23 iconic gestures were performed in the centre space (56.5%) and four in the periphery; one started in the centre and then moved into the periphery; and four followed the converse direction.

Metaphoric gestures

A total of 100 metaphoric gestures were identified. From a semantic point of view, the metaphoric gestures in the TSGC focus on websites, churches and communication as their target domains. This is not surprising in light of the prescribed topic. Although the students drew on many different source domains to make metaphorical meaning, certain source domains featured a number of times. Below I give an indication of the most salient source domains that were drawn upon, how they were gesturally enacted (in brackets), and what they intended to represent (target domains):

- a revolving machine (simulated by a rolling motion with one or both hands, either open or with extended index fingers) for a website (8);

FIGURE **Nº 9**

Metaphoric gesture using a shell-shaped hand to gesture towards the chest (the source domain is the centre of the body, and the target domain is the church).

- a container (signified by tracing the outline of a circle with open or shell-shaped hands) for a website (5);
- the human heart (signified by placing an open hand on or close to the chest) for the church as an institution or the website of the local church (7); Speaker 17.2 moves a shell-shaped right hand closer to her chest when saying 'we found that in this section most web sites found a way to make sure that the visitors kept coming back' (Figure 9).
- spreading a substance along a horizontal path (signified through an outward straight or curvilinear gesture with both open hands) for preaching the gospel or disseminating a message (11);
- empty hands (palm up open hand, often combined with shrugging the shoulders) for not knowing, not acting, not able to find something, or finding a task easy (10); Speaker 7.2 uses the palm up open hand gesture combined with raising his shoulders a number of times. In the following example he does this when referring to his father's fruitless search for information on a church website: 'and he spent about a half an hour looking on the website just really trying to find the service times but he couldn't find it' (Figure 10).

FIGURE **Nº 10**

Using the palm up open hand gesture and a shoulder shrug metaphorically to indicate a fruitless search.

- a vertical orientation (indicated by a rectangular hand shape) for a specified quantity, usually in the upper centre or upper periphery (5); Speaker 4.1 raises his left hand slightly, with fingers horizontal and palm vertical, when saying ' u::h (…) we firstly look at Hillsong Wonderboom, which ranked the highest overall of the websites' (Figure 11).

- an extended horizontal space (open hands, usually spread from the centre-centre leftward and rightward in a straight or curved trajectory) for an unspecified quantity (5); Speaker 10.1 spreads her hands from the centre outward when saying: 'so if you have a website that catches the youth first the youth members will come with their friend their friend will come with a friend and that just increases the number of new members within the church' (Figure 12).

- a container (using both hands to draw a circle or U-shape) for an abstract linguistic concept such as a presentation, conclusion, discussion, schedule or style (5);

- a revolving machine (simulated by performing a rolling motion with one or both hands, either open or with extended index fingers) for communication (4); an example is Speaker 3.3 who uses both open hands to perform a forward rotation in the central space, while saying: 'but as you can see I scored it quite high because it communicated with the people' (Figure 13).

FIGURE **Nº 11**

Using a rectangular hand shape to indicate a specific quantity (high rank) metaphorically.

FIGURE **Nº 12**

Spreading both open hands, palm-up, from the centre outwards to metaphorically indicate an increase in new members.

FIGURE **Nº 13**

A rotation gesture produced with both hands revolving around one another, to metaphorically indicate continuation.

The open-hand shape also dominated in metaphorical gestures (69%), followed by shell/cup 11%; finger bunch 7%; pistol 5%; rectangle 5%; and C-shape 3%. For 71% of the gestures both hands were used, while 20% were performed with the right hand and 9% with the left hand. Sixty-three percent of the gestures occurred in the centre space, 20% in the periphery, and in 17% of the cases started in the centre and moved to the periphery or extreme periphery.

Discussion

Formal aspects of the gestures in the TSGC are summarised in Table 1. Table 1 shows that both hands are used to perform more than two thirds of iconic and metaphorical gestures, whereas deictic gestures are almost by default performed with one hand only. This is not surprising, as deictic gestures have a pointing function, for which only one hand is needed, whereas iconic and metaphoric gestures have a representative function, which is best performed using both hands.

Comparison of gesture types in terms of handedness, hand shape, and gesture space

	Handedness		Position in gesture space				Hand shape								
	Left/ Right	Both	Centre	Periph.	Centre - Periph.	Periph. - Centre	Open	Pistol	Shell / cup	C	Flat C	Ext. thumb	Finger bunch	Rect-angle	Star
Deictic	94,8	5,2	38	62			69,8	8,3	10,4		4,2	4,2	3,1		
Iconic	31,5	69,5	65,5	17,4	4,4	21,7	60,9		13,1	4,3	8,7			8,7	4,3
Metaphoric	29	71	63	20	17		69	5	11	3			7	5	

TABLE Nº 1

Formal features of the three main types of gestures in the TSGC and their frequencies, indicated in percentages.

The findings regarding gesture space largely resonate with findings in the research literature. McNeill (1992:86-87) contends that iconic and metaphorical gestures are performed in the centre space, and deictics extend to the periphery. Although in general terms McNeill's claim is supported by the student data, only 62% of the deictic gestures in the TSGC occurred in the periphery, and between 63% and 65% of the metaphoric and iconic gestures occurred in the centre space. Furthermore, the student data bring an additional dimension to the fore, namely that both iconic and metaphoric gestures sometimes cross the boundary between centre and periphery: in the case of iconic gestures this happened in 25% of the instances, and in the case of metaphoric gestures in 17%. Of further interest is that when crossing the boundary, metaphoric gestures tend to move from the centre to the periphery, whereas the reverse is true for iconic gestures. McNeill's (1992:87) claim that '[m]etaphorics congregate below in the lower center space' was not borne out by the student data. In the student presentations a third of the metaphoric gestures occurred in the centre-centre, and the remaining two-thirds were spread across different regions of the centre: upper, lower, left and right.

The preferred hand shape (more than 60%) for deictic, iconic and metaphoric gestures was the open hand. It is surprising that the open hand was preferred for performing deictic gestures (63%), while the pistol hand shape (extended index finger, with the other fingers curled) only occurred in 8.3% of the cases, because an extended index finger is stereotypically associated with pointing.

It is not completely surprising that the C- and flat C hand shape was used in 14% of the iconic gestures. This hand shape was typically used to indicate an object (on a website) that occupies a round or narrow horizontal space, such as a logo, link, bar, tab or e-mail address. Another hand shape worth mentioning is the shell or shallow cup, which occurs in more than 10% of all three categories of gestures. Using this

FIGURE Nº 14

Cup handshape.

hand shape for metaphorical gestures is particularly meaningful where the CONTAINER metaphor contributes part of the source domain meaning. Speaker 3.3, for instance, used it when saying 'but otherwise it has all the information but it doesn't really capture your attention'.

Speaker 5.3 uses a cup hand shape as part of a circular motion when saying 'and there are other social media platforms which can act as an interactive chat forum'. An interactive chat forum is signalled as a container by using both hands to draw a circle in the centre space.

Finally, it should be highlighted that only 8.8% of the students produced almost half (48%) of the total number of gestures in the TSGC, and the fact that this 8.8% is spread across population groups, suggests that only a small percentage of the students are 'gesturers', irrespective of their mother tongue or cultural background. The finding that students are less likely to gesture if they are reading, irrespective of whether they are holding an object such as a cell phone or notes in one or both hands, may indicate

that speaking off the cuff requires more cognitive effort than when reading, and therefore it is more likely that an additional modality (gesturing) is invoked to make meaning when speaking from memory or using cognitive elaboration strategies. This inference is supported by the findings of four research studies quoted by Novack and Goldin-Meadow (2017:385). According to Novack and Goldin-Meadow (2017:385), these studies have proven that 'gesturing while explaining a concept reduces a speaker's cognitive load'.

Summary and conclusion

My analysis of the TSGC does not indicate a strong relationship between number of gestures and presentation quality in academic presentations: the less than 10% of speakers who accounted for almost half of the gestures in the TSGC, did not necessarily obtain higher marks than those who did not gesture. The fact that TED talks which featured speakers who gestured prolifically 'went viral' (Murphy 2015) can probably be explained with reference to the nature and purpose of such talks, namely to persuade by delivering an on-stage performance. On the other hand, aligned with advice given in manuals on presentation skills, the TSGC does provide support for using strong, deliberate and steady gestures instead of small repetitive gestures such as beats, as they may become distractive.

There is some alignment between manuals and theoretical sources on gestures on how to utilise the gesture space. The manuals that do refer to gesture space merely advise speakers to remain in the 'strike zone' (the centre space). None of the manuals I surveyed mention the space preferred by referential (deictic) and representative (iconic and metaphorical) gestures, namely that representational gestures typically occur in the centre space, whereas referential gestures usually occur in the periphery; and thus they also do not recognise that iconic and metaphoric gestures, especially where movement is involved, sometimes transcend the boundary between the centre and the periphery (as indicated by 20% of the representation gestures in the TSGC).

Regarding the direction of gesturing, manuals generally advise speakers to gesture forward, and not backward. My evaluation of the gestures in the TSGC confirmed that pointing backward toward the screen, while also turning the face and the body backward, is undesirable as the speaker loses eye contact with the audience, and the speech often becomes inaudible. However, pointing backwards over the shoulder with an extended thumb was not perceived as distractive.

Application

It is conceded that the main purpose of advice books and websites on presentation skills is not to show how theory and research findings are to be applied in practice. However, the advice given may be rendered more credible and authentic if justified by theory and evidence from research – and thus manual writers might consider the following:

1. A section or chapter on body language should have a general introduction in which the term 'gesture' is deconstructed by distinguishing between posture, handling objects during a presentation, and using hand gestures. Examples of desirable versus undesirable postures and distractive movements, involving objects or body parts, may be given to clarify these distinctions. Furthermore, in the introduction, users' awareness should be raised that the purpose of the presentation, the context in which the speech is delivered, and the expectations of the audience play important roles in the use and interpretation of gestures. For example, a business presentation will typically be aimed at persuading an audience to take a certain course of action, and an academic presentation will be aimed at convincing the audience of the speaker's knowledge of the subject matter, his/her analytic skills, and the ability to structure content coherently and cohesively. Business presentations and political speeches will probably be scrutinised by the audience for indicators of mood and intention; whereas in academic presentations, body language is more likely to be interpreted as the speaker's ways to explain, describe, compare, contrast, and argue in relation to the topic of the presentation.

2. Manuals on gesture use should make clear that 'hand gestures' bear a close relationship with speech. Furthermore, it would be prudent to note that gesturing should ideally be authentic and not rehearsed; and research should be quoted that some presenters naturally use more gestures than others. In addition, a note may be added that although a speaker is entitled to hold note cards, a script or even a cell phone or tablet in one or both hands, this choice will inhibit the speaker's use of gestures. However, freeing up the hands to use authentic gestures should be offset against fidgeting if the speaker is not holding an object.

3. Users may find it helpful if a simplified typology of gestures is provided to assist them in critically reflecting on their own use of gestures. Adjudicators of presentations may find such a typology supportive in making value judgements about presenters' use of body language. I propose the following typology:

    a. *Gestures that go along with the rhythm of speech (beats)* – for which a variety of hand shapes are used. Users should be cautioned against continuously using small rhythmic movements, as they may become distractive, instead of complementing verbal utterances.

    b. *Gestures that refer to things – concrete or abstract, usually through pointing (deictic gestures).* Absolute prohibitions and unqualified instructions should be avoided. Manual users should be made aware that pointing with the extended index finger should be done with circumspect – preferably never directed at the audience. Pointing to objects and entities with the open

hand, which may or may not be present in the speech context, will probably not be interpreted as threatening or offensive.

c. *Gestures that describe or represent things.* Gestures may represent objects and movements, either concrete (iconic gestures) or abstract (metaphoric gestures). Manual users should be made aware that hand shapes as well as trajectories and directions of movement will, to a large extent, depend on the topic of the presentation, how the speaker understands the concept about which he/she is talking, and even the structure of the language and the linguistic choices that are made.

d. *Conventionalised gestures that convey everyday cultural knowledge, feelings or attitudes, and are understood by all the members of certain speech or cultural grouping (emblems).* Here, a number of well-chosen examples may be provided, with references to encyclopedic sources on emblematic gestures used across the world, e.g. Morris (2015).

e. *Gestures that may have a referential or representational function, but resemble emblems with regard to fairly conventionalised form-meaning relationships.* Such gestures are closely associated with the speaker's mood or intention, and it is widely believed that they provoke a certain emotive or attitudinal reaction from the audience, for example steepling the fingers to exude confidence, or using palm down open hand gestures to indicate dominance.

f. *Gestures that structure discourse (discourse gestures).* These gestures can be functional, for example, when visualising numbers, listing main/key points, and presenting opposing or complementary ideas.

4. Although the utilisation of the gesture space is more flexible than suggested by theoretical sources, it might be enlightening for speakers, lecturers and adjudicators to learn what empirical research has established about preferred spaces for particular gesture types.

Finally, it is suggested that line-drawings or photographs should be included in manuals to schematise prototypical, frequently used hand shapes, and the abundant use of authentic video-stills as examples is recommended to complement, supplement and explain advice on gesturing. In this way, the unique affordances of text and visuals are fully utilised to make meaning: whereas text can be effective in explaining consecutive steps, line drawings (supplemented with arrows) could complement text when describing trajectory and direction of movement, and photographs or line-drawings could be effective in portraying hand shape and orientation of the palm and fingers in space. The latter requires elaborate verbal explanation, which may, in any event, not be sufficient to construct a mental image of the gesture in question.

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