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Self-perception of communicative ability: Evaluation of a questionnaire completed by medical students and general practitioners

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Objectives. To evaluate the psychometric properties of the 50-item Communication Style Measure of Norton (1978), to assess the number of its subscales, and to provide normative descriptions of the subscales for providing feedback in teaching sessions.

Design. Questionnaire administered to 245 undergraduate medical students and 267 general practitioners.

Methods. Confirmatory and exploratory factor analysis of the structure of the 50-item questionnaire. Regression analysis of scores on subscales in relation to age and sex.

Results. Norton's original 10-factor structure for the questionnaire could not be sustained. Exploratory factor analysis suggested three factors which we labelled *effective*, *dominant* and *non-verbal*, which were reliable (Cronbach's alpha = .79, .76 and .74), and which each showed different patterns of association with age and sex. On the basis of the factor analysis we also report a brief, easy to score questionnaire with 18 items, and we give normative distributions which might be useful for teaching in small groups.

Conclusions. Doctors and medical students found the Communication Style Measure easy to complete and to provide useful normative feedback on their self-perceptions relative to those of other doctors and students. The 10 statistical factors proposed by Norton are not supported by the data, but three factors are readily identifiable.

In recent years there has been a growing realization that doctor–patient communication plays a central role in effective medical practice (Simpson *et al.*, 1991), and there have been increasing attempts to teach it, at both an undergraduate and a postgraduate level (McManus, Vincent, Thom & Kidd, 1993), and to assess it (Cushing, Jolly, Bowden & Dacre, 1992; Hodges, Turnbull, Cohen, Bienenstock & Norman, 1996). There seems little doubt that individuals differ in their ability to communicate well (Byrne & Long,

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1984; Stewart & Roter, 1989), and there have been many attempts to measure such differences (Stiles & Putnam, 1989), although most methods have been complicated by being based on time-consuming observations, which potentially reduces their reliability and their generalizability.

As well as there being true differences in communicative ability, people probably also differ in their perceptions of how good they are at communicating, and in the ways in which they communicate best—what Longhurst (1989) has called 'the neglected insight'. The literature contains very many measures which have attempted to measure different aspects of communication (see Rubin, Palmgreen & Sypher, 1994, for a systematic overview of many of them). One of the most general questionnaire instruments for assessing self-perception of communicative ability is the Communication Style Measure (CSM) questionnaire originally described by Norton (1978) and subsequently described further in Norton (1983). In the original CSM-102 questionnaire (Norton, 1978) there were 102 items each of which was rated by the participant on a seven-point Likert scale, with the items being drawn from 10 separate constructs. On the basis of an analysis of the CSM-102, Norton then developed the shorter 50-item CSM, in which each item was assessed on a four-point Likert scale, and there were 5 items for each of the 10 constructs; it is essentially that 50-item scale which is used in the present study. Norton (1978) also used a 'smallest space analysis' to try and define the second-order structure of the 10 constructs, and suggested that either a two or perhaps a three-factor solution best describes the data, albeit with the method not being described very clearly. The development work with the CSM was developed on large groups of undergraduate students at the Universities of Michigan and Western Michigan.

Although from its original description it would seem that Norton's CSM is potentially a very useful measure for workers wishing to have a self-completion questionnaire of an individual's self-perception of their communicative ability, there are almost no studies in the medical literature which have used the measure. That is somewhat surprising, not least because there are no other competing questionnaires of which we are aware which attempt to measure similar constructs. In the present study we therefore set out, firstly, to assess the factor structure and the reliability of the CSM, and, secondly to assess its suitability for assessing self-perceptions of communicative ability in doctors and medical students, rather than in the broader population group on whom it was originally developed.

The CSM has, however, been used outside of medicine, in a number of studies. Some of these have looked at the factor structure, albeit sometimes when the instrument is applied to *other people's* communicative style, and have claimed to find support for the original 11 factors (Staley & Cohen, 1988), and for 3 factors (Buller & Street, 1991; Nussbaum & Scott, 1979; Scott & Nussbaum, 1981), and for 2 factors (Buller & Buller, 1987). There is also some concern that there may be demand factors which are producing the underlying factor structure (Sypher, 1980), although see Norton (1980) for a reply. Support for the validity of the CSM comes from a range of studies in which its scales have been found to relate to other measures (Brandt, 1979; Duran & Zakahi, 1987; Infante & Gorden, 1989; O'Hair, Cody, Goss & Krayer, 1988; Porter, 1982; Rubin & Feezel, 1986; Sallinen-Kuparinen, 1992; Tardy, Childs & Hampton, 1985).

In developing and using the Norton questionnaire we were aware that it might also be of use in the teaching of communication skills, giving individuals an awareness of how their own self-perceptions of ability compared with those of others in their peer group.

We therefore developed a method for giving anonymous feedback within the context of large group testing.

Method

Questionnaire

The questionnaire, which is shown in its entirety in Appendix 1 and occupied two sides of a single sheet of A4 paper, was broadly similar to that reported in Table 1 of Norton (1978) except that (*a*) the majority of emphases were removed from the questions (except items 11 and 31 in which the emphases affect the thrust of the question); (*b*) a four-point scale was used, although since the precise headings were not described in Norton (1978), we instead used 'Describes me very badly', 'Describes me poorly', 'Describes me fairly well' and 'Describes me very well'; (*c*) the original questionnaire contained no rubric, and therefore we prefaced it with a simple statement of its purpose.

The questions were administered in the same random order in which they were presented by Norton. In addition to Norton's questions, our questionnnaire also contained: (i) three items which asked respondents to rate their overall communicative ability in comparison with other people of their own age, other students (or doctors) of their own age, and other medical students (or doctors) of their own age and state of training (or experience); (ii) their sex; (iii) their age (this item was included only on the questionnaires for doctors, and not for medical students); and (iv) respondents were asked to write down a random eight-digit number that they would be able to remember and which would be used to provide anonymous, individualized feedback on how they compared with other respondents in their group.

Participants

The questionnaire was administered to two groups of second-year undergraduate medical students, at St Mary's Hospital Medical School and at Charing Cross and Westminster Hospital Medical School as a part of their undergraduate course in behavioural science, and feedback was provided. The response rate was almost 100 per cent of those attending the class (which was estimated to be about 90 per cent of the year). The questionnaire was also distributed to two large groups of doctors attending postgraduate training programmes in Manchester and in Cambridge for general practitioners on hypertension and cholesterol, and was administered as part of a teaching session on aspects of effective communication, where feedback was provided. The response rate was estimated to be about 70 per cent of the doctors attending the conference and who could have completed the questionnaire. Since the questionnaire was distributed opportunistically and anonymously it was not possible to collect demographic or other data on non-respondents, and thereby determine if non-respondents differed systematically from respondents. It should, however, be noted that both medical students and general practitioners were invited to participate during courses for which communication was not the primary focus.

Results

Overall the questionnaire was completed by 245 medical students (90 St Mary's; 155 Charing Cross and Westminster; 107 (43.7 per cent) males, 127 (51.8 per cent) females, 11 (4.5 per cent) sex not stated, of presumed mean age about 20 years) and by 267 general practitioners (Manchester: 128; Cambridge: 139; 171 (64.0 per cent) males, 79 (29.6 per cent) females, 17 (6.4 per cent) sex unstated; mean age (SD) = 47.5 (9.3) years, range 28–71).

The 50 items of the CSM were scored from 1 to 4, with 1 indicating 'Describes me very badly' and 4 indicating 'Describes me very well'. Three items, 4, 17 and 26, were reverse scored. Norton described 10 separate subscales which were each comprised of five separate items, as shown in Table 1. Reliability of the subscales using coefficient alpha is shown in Table 1 and averages .653 (range .818–.482), a value which is not particularly high

although the scales are composed of only 5 items. Table 1 also shows the mean and standard deviation of the measures, and it can be seen that there is a reasonable degree of variation present within the population, and some individuals on each scale reached close to the extremes of the measures. The distributions were all approximately normal. Table 2 shows the correlations between the 10 subscales, along with the correlations reported by Norton. It can be seen that, although in many cases the pattern of correlations is broadly similar to that of Norton, there is a greater tendency in our data for some of the correlations to approach zero, suggesting greater independence between two or more higher order factors.

Age and sex differences

Table 1 also shows the results of a multiple regression analysis using the 10 subscales as the dependent variable, in relation to age, sex and the age × sex interaction. Age differences are present on only 5 of the subscales. The largest b value is $-.044$ for the Dramatic scale, representing a decrease of .044 points on the raw scale per year, or 2.2 points across the age range of 20 to 70. Sex differences are significant on four of the scales and in the largest case correspond to a difference in mean of 0.725 points on the raw scale. As they grow older, doctors see themselves as somewhat less dominant, less dramatic, less contentious, less animated and more open. Likewise, female doctors see themselves as less contentious, more animated, better listeners and more open. There are no age × sex interactions. The sex differences are broadly similar to those reported by others (Montgomery & Norton, 1981; Staley & Cohen, 1988).

Factor analysis

The factor structure of the questionnaire was assessed using exploratory and confirmatory factor analysis. A confirmatory factor analysis of the 50 measures was carried out using LISREL (Jöreskog & Sörbom, 1993). All 50 measures were included and these loaded onto 10 separate factors, which were allowed to be completely correlated through the phi matrix (i.e. an oblique analysis). Each measure loaded on to only 1 of the 10 factors, with each factor having 5 indicators as shown in Table 1 and as originally formulated by Norton. The fitting of the model was partially successful in so far as all except 1 of the 50 indicators (item 35) showed a significant loading onto its appropriate factor, but the overall goodness of the fit was not good ($\chi^2(1130) = 2834$, $p < .001$), the root mean square residual was 0.080, and none of the goodness of fit indicators reached an acceptable level of 0.9 (goodness-of-fit index = 0.792, adjusted goodness-of-fit index = 0.765). It must therefore be concluded that the original oblique 10-factor description of the questionnaire is not satisfactory.

In view of the relatively poor fitting of the confirmatory model, an exploratory analysis of the original 50 variables was carried out using *SPSS for Windows*. Figure 1 shows a scree plot of the eigenvalues against the factor number. There is a clear break in the curve at the third eigenvalue, suggesting that there are probably at least 3 factors present in the data. In view of the fact that Norton himself also argued for a possible 3-factor solution from his smallest space analysis (Norton, 1983) it seemed sensible to try and extract 3 factors from the data. For simplicity these were extracted as orthogonal factors and were rotated

Table 1. The 10 subscales, the items comprising them, the alpha score for reliability, and the influence of age, sex and the age × sex interaction as determined from a multiple regression analysis

Scale[a]	Items	Mean	SD (range)	Alpha	Age[c]	Sex[d]	Age × sex
I. Submissive—*Dominant*	5,7,9,20,44	12.01	2.82 (5–20)	.818	$b = -.020, p < .05$	n.s.	n.s.
II. Non-dramatic—*Dramatic*	22,28,30,32,39	12.07	2.52 (5–20)	.657	$b = -.044, p < .001$	n.s.	n.s.
III. Congenial—*Contentious*	2,10,13,37,41	12.06	2.54 (5–20)	.650	$b = -.034, p < .001$	$b = -.502, p < .05$	n.s.
IV. Calm—*Animated*	6,21,24,34,42	13.55	2.35 (7–20)	.622	$b = .027, p < .001$	$b = .707, p < .001$	n.s.
V. Weak impression—strong impression (*Impression leaving*)	11,14,18,31,40	13.09	2.39 (6–20)	.798	n.s.	n.s.	n.s.
VI. Anxious—*Relaxed*	4[b],12,16,17[b],36	13.07	2.40 (7–20)	.677	n.s.	n.s.	n.s.
VII. Poor listener—Good listener (*Attentive*)	15,23,27,29,45	14.13	2.06 (8–20)	.553	n.s.	$b = .725, p < .001$	n.s.
VIII. Closed—*Open*	1,25,26[b],33,38	12.69	2.54 (5–19)	.637	$b = .035, p < .001$	$b = .532, p < .05$	n.s.
IX. Unfriendly—*Friendly*	3,8,19,35,43	14.16	1.91 (8–19)	.482	n.s.	n.s.	n.s.
X. Poor—Good *Communicative self-image*	46,47,48,49,50	13.59	2.50 (6–20)	.743	n.s.	n.s.	n.s.

[a] The item in italic corresponds to the original description used by Norton, and the items between dashes indicate the scale as we reported it to the participants.
[b] Reverse scored item.
[c] *b* values indicate change in score per year of age; multiply *b* by 10 to find the effects per decade of age or by 50 for the age range 20–70.
[d] Sex scored as male = 1, female = 2, so that a positive *b* value indicates the mean score for females is higher by the amount of the *b* coefficient.

Table 2. Shows correlations between the 10 original subscales of the Norton questionnaire for the present data (below diagonal) and for Norton's original data as reported in Table 4 of the 1979 paper

	I	II	III	IV	V	VI	VII	VIII	IX	X
I. Submissive—*Dominant*	1	.51	.48	.39	.48	.36	.24	.48	.35	.59
II. Non-dramatic—*Dramatic*	.45	1	.41	.54	.45	.26	.31	.38	.35	.41
III. Congenial—*Contentious*	.41	.39	1	.32	.41	.19	.29	.32	.25	.36
IV. Calm—*Animated*	.37	.46	.27	1	.42	.22	.37	.42	.40	.37
V. Weak impression—Strong impression (*Impression leaving*)	.51	.38	.29	.30	1	.37	.38	.40	.39	.54
VI. Anxious—*Relaxed*	.23	.11	−.07	.10	.33	1	.28	.31	.25	.48
VII. Poor listener—Good listener (*Attentive*)	.10	.06	.03	.33	.26	.23	1	.33	.50	.38
VIII. Closed—*Open*	.37	.18	.14	.35	.26	.08	.09	1	.37	.53
IX. Unfriendly—*Friendly*	.18	.09	.09	−.05	.30	.22	.19	.49	1	.42
X. Poor—Good *Communicative self-image*	.46	.27	.11	.35	.42	.45	.32	.33	.35	1

using a varimax criterion, although it was accepted in advance that in principle the factors may be oblique.

The 3-factor solution produced a relatively straightforward and easily interpretable solution. Reification of the factors was by considering those items which had loadings of more than .4, which applied to 28 of the items, although in three cases (items 7, 44, 47) there were loadings of more than .4 on 2 of the 3 factors. Factor I had loadings of more than .4 on items 40, 36, 14, 47, 31, 11, 44, 16, 7, 49, 8 and 12 (in descending order). These questions are mainly concerned with being a friendly, effective communicator who is relaxed under pressure and leaves an impression on people: we will call this factor *effective*. Factor II had loadings of more than .4 on 9 items (39, 41, 9, 2, 44, 37, 28, 7 and 5 in descending order). These items are mainly concerned with being argumentative, dramatizing, speaking a lot and dominating conversations, and therefore can reasonably be called *dominant*. Factor III had loadings of more than .4 on 10 items (19, 23, 25, 6, 24,

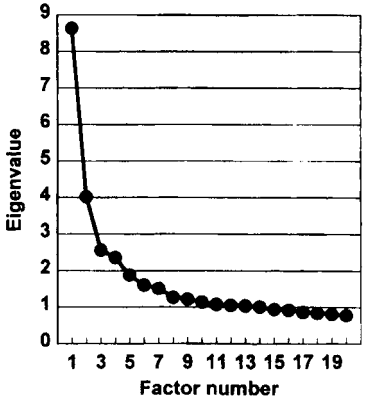

Figure 1. The first 20 eigenvalues of the factor analysis of the 50 items in the Norton questionnaire.

42, 21, 33, 47 and 45 in descending order). Most of these items are concerned with being expressive non-verbally, using face, eyes and gesture to encourage people, and therefore being empathetic and supportive. It is perhaps best called *non-verbal*. There is a broad conceptual similarity between these labels and those used by Scott & Nussbaum (Nussbaum & Scott, 1979; Scott & Nussbaum, 1981).

In order to explore these 3 factors we calculated scores on the 3 factors by summing those items which were unique to the factors (see Table 3 for a listing of these items). The scores thus produced showed satisfactory alpha coefficients of reliability (range .74–.79). Although our factor analysis had extracted orthogonal items, we did not expect that our simple scales derived by summing items identified from the factor analysis would be orthogonal, and indeed they were not. The *effective* scale correlated .24 with the *dominant*, and .44 with *non-verbal*, and *dominant* correlated .33 with *non-verbal*. To some extent, therefore, doctors who see themselves as high on 1 factor see themselves as high on the other factors. In Table 1, it had been suggested that only some of Norton's 10 original factors related to age and sex. We therefore expected that our three scores might well relate differently to age and sex. In view of the known correlations between the three scores, we looked at the effects of age and sex both simply and after taking the other 2 factors into account as covariates. Table 3 shows that in a simple analysis *effective* shows only a small association with sex and no association with age. However, analysis of covariance taking the other 2 factors into account shows that there is a highly significant effect of sex, women seeing themselves as less effective communicators than do men, and a significant effect of age, older doctors seeing themselves as more effective communicators than younger doctors. In contrast, *dominant* showed a strong association with age, older doctors seeing themselves as significantly less dominant than did younger doctors, although there was no sex difference, and the results were unchanged by analysis of covariance. Finally, on the *non-verbal* scale, women doctors saw themselves as very much more effective non-verbal communicators, and there was a small effect of age, older doctors seeing themselves as somewhat less effective non-verbal communicators, although the latter was non-significant in the analysis of covariance.

Discussion

Although Norton's CSM has been used in a number of studies in the literature (see the introduction), to our knowledge there have been none that have looked at medical students and qualified doctors (although we note that there are two studies which have asked *patients* to assess the communicative style *of their doctors* using the CSM; Buller & Buller, 1987; Buller & Street, 1991). Since the CSM was developed in undergraduates in general there might have been a concern that it would be inappropriate for medical students, and particularly that it would not be useful for qualified doctors of a wide range of ages. The present study confirms that medical students and doctors are happy to complete the questionnaire, find it acceptable and give meaningful answers. Although we have no direct evidence at present of the questionnaire's predictive validity in doctors, we expect, given the predictive validity of the CSM in other situations, that it will also have it in a medical context. We are presently collecting data to assess that. Further development will require an examination of how these communication styles translate into behaviour in the consultation

Table 3. The three subscales derived from the factor analysis, the items comprising them, the alpha score for reliability, and the influence of age, sex and the age × sex interaction as determined from a multiple regression analysis. Values in parentheses in the column for sex, age and sex × age indicate the effects after scores on the other two scales have been taken into account as covariates

Factor	Unique items	Mean	SD (range)	Alpha	Age[a]	Sex[b]	Age × sex
I. Effective	8, 11, 12, 14, 16, 31, 36, 40, 49	24.4	3.6 (8–36)	.790	n.s. ($b = .29, p < .01$)	$b = -.72, p < .05$ ($b = -1.30, p < .001$)	n.s. (n.s.)
II. Dominant	2, 5, 9, 28, 37, 39, 41	16.8	3.5 (7–27)	.763	$b = -.073, p < .001$ ($b = -.069, p < .001$)	n.s. (n.s.)	n.s. (n.s.)
III. Non-verbal	6, 19, 21, 23, 24, 25, 33, 42, 45	25.0	3.7 (14–36)	.739	$b = -.027, p < .05$ (n.s.)	$b = 1.43, p < .001$ ($b = 1.79, p < .001$)	n.s. (n.s.)

[a] b values indicate change in score per year of age; multiply b by 10 to find effects per decade of age or by 50 for the age range 20–70.
[b] Sex scored as male = 1, female = 2, so that a positive b value indicates the mean score for females is higher by the amount of the b coefficient.

and the impact they have on patients. A further question of some interest concerns the extent to which self-perceived communicative ability generalizes across situations, and specifically from everyday social life to professional interactions with patients and colleagues. It is possible that these differ substantially in some individuals who choose to present themselves differently when adopting different personae, and it might be of interest to compare the same questionnaire when it specifically refers to social or professional contexts.

In the present study we feel that our data are probably representative of medical students and general practitioners in general. However, in the case of the general practitioners we are aware that, firstly, those doctors who choose to come to a conference are to some extent self-selected. Likewise it is possible that the sample who completed our questionnaire is a biased subset of those at the meeting. Regrettably because the questionnaire was anonymous it was not possible to collect any useful information for distinguishing respondents from non-respondents. Our suspicion is that the majority of non-respondent general practitioners were simply those who were not staying for the whole of the meeting, and hence were not going to be present at the talk at which the results were discussed.

The principal emphasis of this study has been on assessing the psychometric properties of Norton's Communication Style Measure in the form presented in Norton (1978). It must be emphasized that although in chapter 3 of Norton (1983) the questionnaire is presented in essentially similar form to that of the 1978 paper,[1] in Appendix B of the 1983 book there is a somewhat different version of the questionnaire, which, although it is presented as broadly similar (e.g. p. 13 and p. 57), is in fact substantially different, with the items in a different order, only four items per construct, six filler items, an additional construct, *Precise*, some of whose components were used in other scales in the 1978 paper, and a five-point rather than a four-point response scale. Since no statistical or psychometric details are presented for that version of the questionnaire, the present study restricts itself to the version which has been formally presented in the 1978 paper and at more detail in chapter 3 of the 1983 book. We also note that Montgomery & Norton (1981) have presented what they call a Short Form of the CSM which has a very different structure, with respondents describing how well a set of 11 four-sentence cameos derived from the CSM are applicable to themselves.

Overall the structure proposed by Norton, of 10 separable albeit correlated measures of self-perceived communicative ability, could not be supported by the data, the confirmatory factor analysis in particular not being a good fit to the data. Norton's separate scales were very much derived *a priori*, rather than by analysis of the intercorrelations between the items themselves. Analysis of the scree slope strongly suggested that there were at least two and probably three factors actually present in our data, and when three factors were extracted they seemed straightforward and easily identified. Particularly interesting was that the factors showed different relationships to

[1] A minor but important difference is that the 1978 paper does not describe the labels used for the four-point scale on which the participants endorsed the items. In the 1983 book it is said that 'A four-point scale was used, ranging from "very strong agreement" with the statement to "very strong disagreement" with the statement' (p. 74). Since when the present research began we were only aware of the 1978 paper, we therefore chose to use our own headings as shown in Appendix 1; fortunately we do not believe these are likely to be substantially different in meaning from those used by Norton.

age and sex, partly thereby supporting their identification as separate factors. The effects of sex, with women doctors seeing themselves as less effective communicators overall but being particularly good at non-verbal aspects of communication is not incompatible with other studies of sex differences in communicative ability, and certainly corresponds well to other measures using the CSM (Montgomery & Norton, 1981; Staley & Cohen, 1988). Age changes also made sense, with younger doctors seeing themselves as more dominant but older doctors seeing themselves as more effective. Both results might have been predicted *a priori* by practising doctors, or from a reading of the literature.

In using a factor analysis to assess the structure of Norton's questionnaire we are aware that in his 1983 book he explicitly says 'Do not factor analyze the communicator style construct ... it tends to "brutalize" the data structure', and in a lengthy footnote he argues that factor analysis often produces more dimensions than smallest space analysis. However, in the quotation above he does, in the part omitted in the ellipsis, add 'unless a compelling rationale can be found', and we cannot help noting that he himself actually briefly reports a factor analysis of some of the participants completing the measure and that 'ten factors emerged in expected patterns' (p. 93), although he admits that some of the factors 'did not hold together'. It hardly needs saying that we do believe that there are compelling reasons for carrying out a factor analysis, since it is important to determine whether independent measures are indeed independent, and most modern authors accept that the procedure, if used properly, can indeed answer such questions (Child, 1990; Gorsuch, 1983; Loehlin, 1992).

Taken overall, we believe that the original questionnaire developed by Norton is potentially a useful research instrument, giving information about how individuals see their own communication style on a number of separate dimensions, and that it can readily be applied to medical students and to experienced doctors. Although we do not believe that the full 10-dimensional structure as originally proposed by Norton can be supported by our psychometric analysis, we have nevertheless found that in teaching sessions the 10 scales can provide a useful way for individuals to view themselves in relation to others. Our approach to using the instrument has been to provide each doctor or medical student with a set of histograms similar to those in Fig. 2 for the group as a whole (i.e. their immediate peers) and then provide them anonymously with their own scores so that they can then see how they relate normatively to the other persons. This we have found invariably provides a useful basis for discussion and self-reflection. No doubt it would also be effective if we only gave people their three scores on the scales derived from factor analysis.

Norton's original questionnaire is fairly lengthy with 50 items and taking up two sides of a sheet of A4 paper. In Appendix 2 we therefore present a briefer questionnaire with only 18 items, 6 on each of the 3 scales, selected to give reasonable reliabilities, with none of the items loading on 2 or more of the scales, and without too much obvious repetition of content. Scoring is straightforward with none of the items needing to be reversed, and the *effective* scale being derived from items 1, 4, 7, 10, 13 and 15, the *dominant* scale being derived from items 2, 5, 8, 11, 14 and 17 and the *non-verbal* scale from items 3, 6, 9, 12, 15 and 18. We estimate from the responses of our participants to these items on the 50-item questionnaire that the alpha coefficients for these scales will be about .70, .75 and .69 respectively. Figure 2 shows distributions of responses of participants on the three

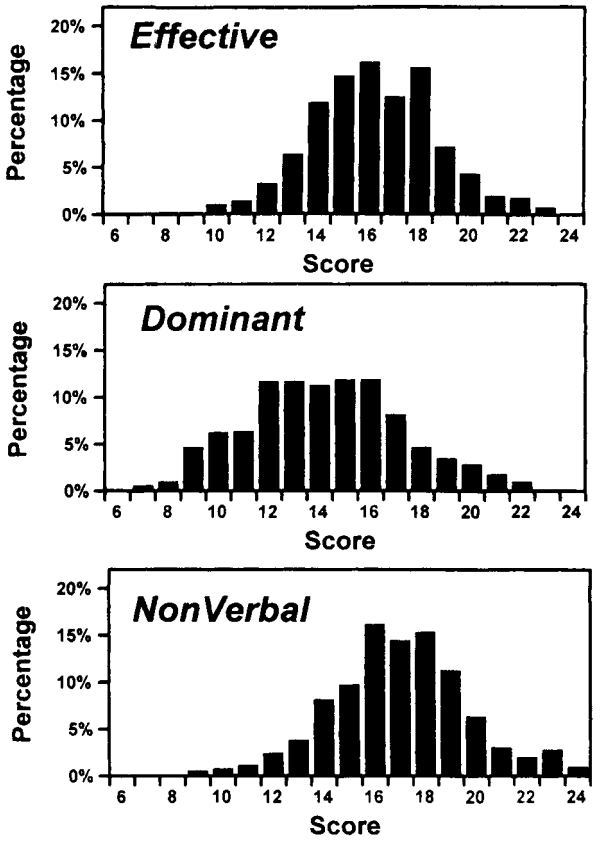

Figure 2. Distributions of scores on the three scales of the 18-item questionnaire, calculated from participants' responses to the 50-item questionnaires.

scales as estimated from their responses on the 50-item questionnaire. These may be of use for providing some form of normative feedback to individual respondents, although in a large-group teaching context it would probably be best if the responses of the group itself were used for feedback.

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Appendix 1. The full 50-item version of the Norton CSM questionnaire

Communication style

People differ in the way that they communicate. In this questionnaire we would like you to indicate how well each of the following statements describes the way that *you* communicate.

	Describes me very badly	Describes me poorly	Describes me fairly well	Describes me very well
1. I readily reveal personal things about myself				
2. Once I get wound up in a heated discussion I have a hard time stopping myself				
3. I always prefer to be tactful				
4. I am conscious of nervous mannerisms in my speech				
5. In most social situations I generally speak very frequently				
6. I actively use facial expressions when I communicate				
7. In most social situations I tend to come on strong				
8. I am an extremely friendly communicator				
9. I have a tendency to dominate informal conversations with other people				
10. Very often I insist that other people document or present some kind of proof for what they are arguing				
11. *What* I say usually leaves an impression on people				
12. As a rule I am very calm and collected when I talk				
13. In arguments I insist upon very precise definitions				
14. I leave people with an impression of me which they tend to remember				
15. I can always repeat back to a person exactly what was said				
16. Under pressure I come across as a relaxed speaker				
17. The rhythm or flow of my speech is affected by nervousness				
18. The first impression I make on people causes them to react to me				
19. Most of the time I tend to be very encouraging to people				
20. I try to take charge of things when I am with people				
21. I am very expressive non-verbally in social situations				
22. My speech tends to be very picturesque				
23. I always show that I am very empathetic with people				
24. I tend constantly to gesture when I communicate				
25. I am an extremely open communicator				
26. Usually I do not tell people very much about myself until I get to know them quite well				
27. I am an extremely attentive communicator				
28. I very frequently verbally exaggerate to emphasize a point				
29. I really like to listen very carefully to people				
30. Often I physically and vocally act out what I want to communicate				

	Describes me very badly	Describes me poorly	Describes me fairly well	Describes me very well
31. The *way* I say something usually leaves an impression on people				
32. I regularly tell jokes, anecdotes and stories when I communicate				
33. As a rule I openly express my feelings or emotions				
34. People generally know my emotional state, even if I do not say anything				
35. Often I express admiration to a person even if I do not strongly feel it				
36. I am a very relaxed communicator				
37. When I disagree with somebody I am very quick to challenge them				
38. I would rather be open and honest with a person than closed and dishonest, even if it is painful for that person				
39. I dramatize a lot				
40. I leave a definite impression on people				
41. I am very argumentative				
42. My eyes tend to reflect to a very great degree exactly what I am feeling when I communicate				
43. I habitually acknowledge verbally other people's contributions				
44. I am dominant in social situations				
45. I deliberately react in such a way that people know that I am listening to them				
46. The way I communicate influences my life both positively and dramatically				
47. I am a very good communicator				
48. I find it easy to communicate on a one-to-one basis with strangers				
49. In a small group of strangers I am a very good communicator				
50. I find it extremely easy to maintain a conversation with a member of the opposite sex whom I have just met				

Taken overall, how do you think your communicative ability compares with other people's?

	Much better than average	Somewhat better than average	About average	Somewhat worse than average	Much worse than average
People as a whole of your age					
Doctors in general of your age					
Doctors of your own age and experience					

Are you male or female? (Please ring one) Male / Female How old are you? _____

Thank you for completing this questionnaire

If you would like feedback on this questionnaire then please write in the following boxes an eight-digit number *which you will be able to remember* so that you can recognize the scores that apply to you, e.g. 17061501.

□□□□□□□□

Appendix 2. An abbreviated 18-item version of the Norton CSM questionnaire

Communication style

People differ in the way that they communicate. In this questionnaire we would like you to indicate how well each of the following statements describes the way that *you* communicate.

	Describes me very badly	Describes me poorly	Describes me fairly well	Describes me very well
1. I am an extremely friendly communicator				
2. In most social situations I generally speak very frequently				
3. I actively use facial expressions when I communicate				
4. *What* I say usually leaves an impression on people				
5. I have a tendency to dominate informal conversations with other people				
6. Most of the time I tend to be very encouraging to people				
7. As a rule I am very calm and collected when I talk				
8. I very frequently verbally exaggerate to emphasize a point				
9. I always show that I am very empathetic with people				
10. Under pressure I come across as a relaxed speaker				
11. When I disagree with somebody I am very quick to challenge them				
12. I tend constantly to gesture when I communicate				
13. The *way* I say something usually leaves an impression on people				
14. I dramatize a lot				
15. I am an extremely open communicator				
16. I leave a definite impression on people				
17. I am very argumentative				
18. My eyes tend to reflect to a very great degree exactly what I am feeling when I communicate				

Taken overall, how do you think your communicative ability compares with other people's?

	Much better than average	Somewhat better than average	About average	Somewhat worse than average	Much worse than average
People as a whole of your age					
Doctors in general of your age					
Doctors of your own age and experience					

Are you male or female? (Please ring one) Male / Female How old are you? _____

Thank you for completing this questionnaire

If you would like feedback on this questionnaire then please write in the following boxes an eight-digit number *which you will be able to remember* so that you can recognize the scores that apply to you, e.g. 17061501.

□□□□□□□□