

*Grading for translation quality or legibility?  
A challenge to objective assessment  
of translation quality in handwritten samples*

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ABSTRACT

Research literature on translation quality assessment focuses on substantive criteria for reliable and intersubjective appraisals of translation quality. However, assessments involving handwritten translations (which are still routinely used in many formal testing and certification procedures, competitions, and occasionally in academic translator training) may be also affected by psychological effects related to sample legibility, such as the halo effect and the processing fluency effect. As a result, assessments may be biased by the appearance of the text on the page, a factor which has no relevance to translation quality. This article seeks to establish whether varying levels of legibility introduce bias to assessments of quality by boosting scores (in the case of neat handwriting) or depressing them (in the case of messy handwriting). To test this hypothesis, the results of a nationwide translation competition judged by a panel of professional translators were examined for connections between perceived penmanship quality and perceived translation quality, as measured by actual performance in the competition. The complete set of handwritten translations in the competition (N=38) was assessed for legibility by a panel of independent appraisers. Those legibility scores were then compared to the official results of the competition. The findings reveal a statistically significant difference in legibility scores separating the most successful entries (prize winners) from the least successful entries, suggesting that penmanship standards could be unduly influencing appraisals of translation quality. The finding has relevance not only for the design of appraisal procedures in certification exams or competitions, but also for translation quality assessments performed by instructors in translator training.

**Keywords:** translation quality assessment, translation quality, competitions, competition design, handwriting, processing fluency, halo effect

## 1. Introduction

There is a general agreement in the literature that translation quality assessment procedures used in training and certification procedures should be *valid*, meaning that assessments should reflect actual quality through the correct choice of testing material, and *reliable*, meaning that assessments should yield consistent results.

Those twin goals are difficult to obtain, partly because the very concept of “translation quality” is a flexible construct (for an overview of the problems see Kim, 2013 and House, 2009). Where the focus in translation quality assessment is on the conceptual aspect of translation quality (what is it that makes a translation good) it is possible to come up with a whole range of dimensions of translation quality depending on cultural norms, personal judgement, intuitive and holistic perceptions of quality, extent of textual equivalence, degree of translation transparency, function or purpose of translation, fitness for use, client satisfaction, compliance with good practice, added value, translator competence or absence from errors, and possibly other mutually irreconcilable factors (cf. Dybiec-Gajer, 2013). As a result, translation quality can be defined and measured in a variety of ways, which have been historically predicated on textual grounds (Reiss, 1971, 1976, 2000) or functional grounds (House, 1977/1981, 1997). The attention in assessment is mainly directed at eliminating subjectivity from error analysis by means of predefined reliable quantification tools such as rubrics or corpora (cf. Angelelli & Jacobson, 2009, Kim, 2013).

In addition to the nebulous and potentially subjective nature of the concept and the resultant challenges to consistent quantification, however, assessment can also be hindered by shortcomings affecting assessors. An overview article on the subject by Malcolm Williams lists eight challenges to valid and reliable assessment, mostly focusing on the inherent arbitrariness (unreliability) of personal judgments on matters of style and quality, which resist quantification and objective assessment. Possible challenges to assessment reliability as identified in the literature include variability in personal judgements over time, lack of objectivity, and unclear or ambiguous quality requirements, especially in borderline cases (cf. Williams, 2009: 5).

However, assessment also appears to hinge on yet another relevant dimension, which so far remains unacknowledged in the literature: assessments of translation quality may be distorted by impersonal cognitive biases triggered by varying levels of sample legibility. This article looks at the scores of a translation competition where handwritten entries were judged for translation quality to demonstrate how high or low legibility of samples may distort perceptions of translation quality.

## **2. The changing status of handwriting**

Although handwriting has largely disappeared from professional translation practice, the problem of assessment involving handwritten samples is still a timely one. Although some certification bodies have either implemented or are debating a transition from paper-based exams to computerised exams (with or without access to the internet), handwritten paper tests continue to be used at the time of writing in many countries for a number of reasons such as fairness, digital security, technological challenges, avoidance of potential foul play, and limited resources (cf. Doherty and Garcia, 2015). Pen-and-paper examination formats still predominate in many of the world’s translator certification bodies. The American Translators Association has been ineffectually pursuing efforts to implement a Computerized Certification Exam for the last ten years (Bokor, 2015). A large-scale survey prepared by Stejskal in 2005 (The Survey of the FIT1 Committee for

Information on the Status of the Translation and Interpreting Profession) listed only eight certification bodies (out of the total 63 approached) that reported accepting computer based exams (Stejskal, 2005 cited in Doherty and Garcia, 2015). Even that low rate of certification bodies that accept digital formats may actually be an overestimate; for instance, one of the organizations listed by Stejskal as accepting computers for certification purposes (the Polish Society of Sworn and Specialised Translators or TEPIS) is not in fact Poland's official certification body: the computer exam in question is an internal procedure for the organization members, whose members account for only around 10 per cent of Poland's total number of certified translators. Official certification procedures in Poland (a mandatory requirement for all translators working in Poland's justice system) are handled by the Ministry of Justice, which at the moment of writing retains the pen-and-paper exam format.

Handwriting also continues to play a role in educational environments. In educational terms, handwriting appears to offer cognitive benefits over typing or interactive screen use. The complex, tactile nature of handwriting appears to impose an extra layer of brain connectivity on cognitive processes (Mangen and Velay, 2010), and the haptic nature of handwriting results in a range of cognitive effects that offer significant advantages over keyboard use or other forms of digital communication. A metastudy from the Germany-based Written Art Foundation identified a range of benefits to psychological development produced by handwriting in areas as diverse as improved retention of vocabulary items in language learning (Thomas and Dieter, 1987), learning in general (Lund, 2015), (Toft, 2012), better long-term retention and comprehension in note-taking (Mueller and Oppenheimer, 2014), improved reading skills (an effect identified in speakers of Chinese) (cf. Tan et al., 2005), improved written composition skills in young learners (Berninger et al., 2009), and functional brain development in pre-school children (James and Engelhardt, 2012).

However, cognitive benefits of handwriting are being outweighed by practical considerations as digital text processing is gaining prevalence in daily life and learners and adults alike are losing the skills required to produce legible handwriting projects. A recent report by the Schreibmotorik Institut, produced in collaboration with The German Teachers Association (Der Deutsche Lehrerverband, DL), revealed that a full four-fifths (81 per cent) of middle school teachers believed that the average handwriting standards among their students had declined. As many as 87 per cent of primary school teachers enrolled in the study also reported a decline in terms of competencies children require in order to start learning handwriting successfully. The teachers reported that 51 per cent of male students and 31 per cent of female students had problems with their handwriting, including a widespread inability to write by hand for more than 30 minutes at a stretch. (Schreibmotorik Institut, 2015).

Some educational boards have begun to review their curricula to reflect the decline in the use of handwriting in daily life. From 2016 onwards, cursive writing (where letters are joined up with fast strokes) will be dropped from the curriculum altogether in Finland (Russell, 2015), to be replaced by a greater emphasis on print writing and keyboard skills. In this, Finland is joining education boards in most of Canada (van de Geyn, 2013) and the USA, where cursive writing tends to be

regarded by many as an obsolete skill (Shapiro, 2013). Declining penmanship standards are particularly relevant in the context of translator training, assessment and certification, especially given that pen-and-paper formats are already far removed from usual professional practice — so much so as to be a handicap to translators, virtually all of whom have long incorporated digital word processing and online searches into their workflow.

### 3. Potential biases affecting assessors

Accordingly, it is an open question whether or not paper-based exams are actually a level playing field for all the entrants. The handwriting style is an idiosyncratic quality that may vary widely from person to person, and even for different samples produced by the same individual. In this context it is possible that examiners might mistake legibility and penmanship quality for translation quality?

One potential source of such distortion comes from the combined effects of two cognitive biases, namely *halo effect* and *processing fluency* (cognitive ease), two psychological phenomena well-established in basic psychological research.

First empirically observed in 1920, the halo effect is a type of cognitive bias that involves the clustering of positive characteristics in appraisals of people or objects. As a result, some perceived characteristics “spill-over” to influence the perception of other qualities as well, leading people to “evaluate an individual high on many other traits because of a belief that the individual is high on one particular trait” (Roeckelein, 1998: 227). Instances of the halo effect are mentioned in existing explorations of the impact of penmanship quality on perceived quality of writing. A study by Chase (1979), a follow-up of an earlier 1968 study by the same researcher (where identical essay content recorded at varying standards of penmanship was submitted for grading) compounded the effect by providing the assessors with lists of the respective writers’ supposed academic credentials and achievements, thus producing, and duly observing, significant halo effects affecting grading (Chase, 1979 cited in Morris, 2013: 7).

Another potential mechanism whereby neat handwriting might influence the perception of unrelated characteristics such as translation quality is a phenomenon known as *processing fluency*, or a measure of how easy it is to understand or think of something. Daniel Kahneman’s magisterial compendium of psychological biases and heuristics (Kahneman, 2011) lists the factors that result in processing fluency (which he calls “cognitive ease”), such as repeated experience (familiarity), priming (a cognitive effect whereby certain specific reactions to stimuli are boosted by immediate prior experience), and good mood, but also, particularly importantly for our purposes, “clear display”, i.e. legibility. Messages with those characteristics get processed more fluently, leading to experiences that feel familiar, true, good and effortless (Kahneman, 2011: Fig. 5).

The effects of the factors that produce processing fluency, argues Kahneman, are interchangeable:

When you are in a state of cognitive Ease, you are probably in a good mood, like what you see, believe what you hear, trust your intuitions, and feel that the current situation is comfortably familiar. You are also

likely to be relatively casual and superficial in your thinking. When you feel Strained, you are more likely to be vigilant and suspicious, invest more effort in what you are doing, feel less comfortable, and make fewer errors, but you will also be less intuitive and less creative than usual.

(Kahneman, 2011: 60).

This effect has obvious relevance for assessments of translation quality, and some empirical findings relating to reader perceptions of essays indicate that cognitive factors such as legibility may indeed affect perceptions of quality. A study by Klein and Taub (2005) revealed differences affecting essay scores as a function of legibility and choice of writing implement, ranging from legible typed essays (which received the best marks) to unclear pencil, pen and typed essays, identifying a significant drops in average scores for the latter (cited in Morris, 2013: 12-13). Similarly, Greifeneder et al. (2010) conducted a series of three experiments to find a statistically robust correlation between legibility and positive evaluations of handwritten material. Kathryn J Morris's published thesis surveys a total of eight articles that explore the effects of good penmanship on grading, two of which pointed to a correlation between the variables. The earliest source identified by Morris was a 1929 study which found a correlation between penmanship quality and better marks, and demonstrated a "carry-over" effects when papers were graded in a sequence (cited in Morris, 2013: 3-4). The other study (Chase, 1968) identified differences in marks awarded to identical essays when written with varying levels of penmanship and spelling quality. With an average score awarded to the neat papers standing at 13.14 (compared to 11.64 awarded to the sloppier papers), the effect accounted for 11 per cent of the score, a difference which was reduced to 7.3% when a standardised assessment rubric was used.

However, the effect is far from straightforward or incontrovertible. Cognitive ease notwithstanding, improved legibility also makes it easier to process text and to spot errors or deficiencies, an effect reported by Powers et al. (1994), who found that printed essays tended to receive lower scores than handwritten ones, presumably because computer print made the errors easier to notice. Morris also mentions a 1969 study by Marshall and Powers, where identical content coming in four standards of legibility (ranging from clean typewritten copy to neat, fairly neat and poor handwriting) was marked by 420 teachers, producing little in the way of statistically significant differences among the sets (cf. Morris, 2013: 10-11). In this context, it is relevant to establish whether or not assessments of translation quality performed off handwritten submissions are in any way affected by legibility.

#### **4. Dataset and methods**

To examine the connection between legibility in handwritten submissions and perceived translation quality, this article looks at the results of a translation competition where handwritten submissions were used in the final stage to provide a level playing ground and to avoid foul play. The competition in question was

called *Thumacze na start*, a Business English competition for college students held in Warsaw in December 2015. In the nationwide final stage the participants were required to produce handwritten Polish translations of a single English text within a stated time limit, without using computers or dictionaries. 43 entrants qualified for the final stage, 38 of whom took part and submitted handwritten translations, which were then evaluated for quality by a team of three professional translators. According to personal communication from the competition organizers at Skrivanek Sp. z o.o (the Polish branch of an international translation agency), the judges were not following a standardized appraisal protocol, and relied instead on holistic judgments based on their professional expertise. The judges produced a ranked list of all the entries, arranged from best (first prize winner) to last.

The appraisal procedure was handled remotely from a different city using scanned images of the entries sent over the internet. To avoid inconveniencing contestants from more remote regions of Poland, the appraisal followed each submission more or less immediately so that the results could be announced soon after the end of the time limit. According to Daniel Kahneman, this kind of setup (absence of a formal procedure, haste, and reliance on holistic, intuitive impressions) is particularly likely to introduce bias because appraisers in such scenarios will tend to rely on snap judgements and mental shortcuts.

The expectation in this study was that processing fluency and halo effect might boost or depress scores, nudging assessments of quality upwards or downwards depending on a text's legibility. To test this hypothesis, the legibility of the handwritten submissions was assessed independently, and the pattern of mean legibility scores for the Top 5 entries (the prize winners) and the Bottom 5 (the biggest losers: the people whose work got dismissed more or less out of hand) was then compared to the distribution of legibility scores of possible distributions occurring at random in the same dataset.

This test involved two methodological challenges. Firstly, the competition results were announced in the form of a ranking list, with no specific scores being available for any of the data points. As a result, the results contained only ordinal scale data and could not be examined in terms of precise differentials: translations of comparable quality in a close contest could potentially have ended up many ranking spots apart, and conversely, considerable differences in translation quality could possibly have been compressed to within a single ranking spot. Accordingly, the test in this article only looks at the crucial top five spots (prize winners), and compares them to the five least successful entries.

Secondly, operationalizing legibility is not a straightforward problem. Individual appraisals of handwriting samples may vary depending on the assessor's mood, patience or prior exposure to different types of handwriting. In this study, a number of independent volunteer appraisers were invited to look at scanned samples of the competition entries, and to assess each sample in terms of legibility on a standard Likert scale, from 1 (highly illegible) to 5 (highly legible). Scans of all the entries were shown to the volunteer assessors in random order. Twenty volunteers completed the survey, and their appraisals of the entries were averaged out for each sample. The averaged-out scores for each sample ranged from 1.95 (illegible) to 4.85 (highly legible). However, it is important to bear in mind that such an aggregated "objective" appraisal of the legibility of any one sample could



across the complete dataset, mean legibility for the top and bottom halves of the competition ranking was comparable (with an average legibility of 3.35 for the top half vs 3.26 for the bottom half). However, the extremes of legibility and illegibility were not evenly distributed. The average legibility score for the Top 5 entries (prize winners) was 3.78 (SD=0.3), with none of the prize winners having been judged to have a handwriting style with below-average legibility: all five of the winning entries had legibility scores of 3.45 or better (3 defined as “neither legible nor illegible” and 4 defined as “legible”). By way contrast, the average legibility score for the Bottom 5 entries was only 2.96. The scores for the Top 10 versus Bottom 10 entries were similarly lopsided: the average legibility score for the Top 10 entries was 3.57 (SD=0.73) versus 2.83 (SD=0.6) in the Bottom 10.

To establish the statistical likelihood of this particular distribution, the complete set of legibility scores was randomly sorted to test the relative frequency with which comparable results could be obtained by random variation. A random sort operation was performed over 5,000 iterations to produce variant permutations of legibility scores, keeping track of all distributions similar to, or more extreme than, the actual distribution in the competition (i.e. distributions with an average legibility score for the Top 5  $\geq 3.78$ , and an average legibility score for the Bottom 5  $\leq 2.96$ ). This was noted occurred in 1.6% of permutations. With a significance threshold set at .05, the distribution of scores in the Top and Bottom 5s (as shown in Table 1 below) was statistically significant at  $p=.016$ .

Average legibility score across the dataset	3.32
Average legibility score: Top 5 (prize winners)	3.78
Average legibility score: Bottom 5 (biggest losers)	2.96

**Table 1. Average legibility versus most and least successful entries.**

Seven out of the ten entries ranked lowest in legibility (range: 1.95-2.70) ended up in the bottom half of the ranking table. None of the ten least legible entries made it into the Top 5 (prize winners), and three out of the Bottom 5 competitors were judged to have below-average legibility (under 3.0). By way of contrast, five out of the ten entries ranked highest in terms of legibility (range: 3.8-4.85) found themselves in the top half of the ranking table, and two of the ten most legible entries ended up in the Top 5 (prize winners). A similar effect continues to hold where legibility is defined in terms of scores removed by one standard deviation from the mean: four out of the seven most illegible entries (with legibility scores at one standard deviation below the mean or less ( $\leq 2.53$ )) ended up in the Bottom 10, and only a single illegible entry made it into the Top 10 (where it was ranked 8<sup>th</sup> overall). On the other hand, two out of the six most legible entries (legibility  $\geq 4.11$ ) were ranked in the Top 10, and none were ranked in the Bottom 10.

## 6. Discussion

The results of the competition versus the simulated alternative distributions suggest a relationship between extremes of (il-)legibility of handwritten entries and competition performance. One alternative explanation for this correlation would be

that legibility actually correlates with translation quality. One way to test that would be to run a reassessment session using standardized transcripts of the original entries, but this solution was not possible because of missing data (not all of the scanned images contained complete entries, meaning that the results could not be reassessed in full). However, there are strong indications that a correlation between penmanship quality and any substantive measures is spurious and the idea that handwriting style actually correlates with character or personality is misguided. Despite the occasional continued use of graphological analysis in some environments, such as workplace hiring decisions or psychological profiling in criminal cases, evidence brings into question the idea that the method might be a reliable indicator of personality.

Graphology (understood as research into presumed correlations between handwriting and personality traits, positive or otherwise) has come in for almost a century's worth of controversy and empirical counter-evidence, as studies seeking to establish correlation between handwriting and psychological traits have repeatedly failed to produce evidence. One 1987 study found no correlation between handwriting and the personality traits comprised in the Eysenck Personality Questionnaire (Furnham and Gunter, 1987) — this finding is particularly relevant in our context since several of the 27 traits in the Eysenck typology, such as expressiveness, reflection, responsibility, impulse control, and others, appear to have direct relevance for the quality of translation work. A more recent study involving two experimental groups not only raised similar doubts about the method by failing to identify any statistically significant correlation between graphological evaluations and personality traits but actually undermined the method's claims to objectivity by demonstrating lack of internal consistency between different graphological assessors (Dazzi and Pedrabissi, 2009). More studies bringing into question both the validity and the intersubjectivity of graphological analysis are listed in Driver et al. (1996), echoing the findings of a meta-analysis of 200 scientific studies of graphology conducted several years previously which found handwriting to be useless in predicting personality traits (Dean, 1992).

## **7. Conclusions**

The statistically significant distribution that favours high-legibility entries for the prize-winning spots and lower-legibility entries for low-ranked entries suggests that the connection between handwriting quality and competition performance in the assessment of handwritten samples as revealed in the present study is likely to be the product of a psychological bias. Given the nature of the data the exact strength of this effect is impossible to quantify: because the dataset comprises ordinal scale data only, we cannot be sure if the bias in question makes a large or small difference to the score in absolute terms. However, any irrelevant factor likely to skew the validity of assessment, no matter how large or small, is undesirable in assessments of translation quality. This likely bias caused by psychological factors needs to be taken into account by examiners and instructors, and formal assessment procedures should be put in place in assessments of translation quality to avoid legibility bias. Where possible, testing procedures

should use digital formats to ensure standardized typography on top of formalized assessment procedures.

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