

An Overview on the Use of Graphology as a Tool for Career Guidance

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ABSTRACT

Graphology or handwriting analysis is based on the notion that because handwriting is unique to the individual, certain inferences can be made about a person's character and behaviour from the specific features. The debate over the value of graphology as an assessment tool has been conducted over a number of years. Even though the scientific researches are not encouraging, some reports, however, suggested that graphology is quietly gaining acceptance. While it is undeniable that graphology is an interesting and sometimes useful procedure, its validity is a matter of public debate and uncertainty, and the use of graphology tests in personality assessment is a personal choice made by individual or company. This paper briefly reviews the background of graphology, graphology in career guidance and discusses general issues related to the use of graphology. An overview of computerised handwriting analysis systems available in the market is also presented and compared for better understanding of graphology.

Key words: Graphology, Career guidance, Handwriting analysis, Computerised handwriting analysis

INTRODUCTION

Graphology or handwriting analysis is a field of study for identifying and understanding people's personalities, behaviours and characters through analysing their handwritings. The techniques of graphology are used in numerous applications. The common applications of graphology are employment profiling, marital compatibility, psychological analysis and medical diagnosis (The Internet Health Library, 2000).

In the past, most of the studies in graphology were associated with the reliability and validity of graphology as a method for personality traits assessment. Today, graphology figures in a multitude of disciplines. The three main elements of today's graphology are (Cohen, 2003):

- Research, development and education: It deals with what happens in our brain and on the way to our writing. These include experimentation and computer-aided research in the recognition, comparison, identification and development of handwriting and all expression leaving visible traces for communication, be it with the pen or associated with other means of implementation involving the manual use of writing and drawing instruments. In education, handwriting research embraces

early discovery of symptoms likely to cause problems, such as dyslexia, establishes rules for their observation, and provides a starting point for subsequent medical, therapeutic or psychological treatment by qualified specialists.

- Script-psychology, interpretation of handwriting: It deals with behavioural and personality profiles. Analysis is based on theories to explain causes of writing behaviour such as the size and shape of letters or words, the slants, margins, gaps between lines, the pressure applied to the pen, the placement of i-dots and t-crossings, etc. In practice, it is a diagnostic appraisal for occupational purpose and career guidance, behavioural profiling, risk assessment and counselling consultancy. Scientifically, it is the most intriguing, demanding and neglected section.
- Forensic comparison and identification: It examines documents in query and signature to detect authenticity or forgery. Writing construction, proportions, shape and use of space are important elements in the analysis. It is, however, not an abstract or exact science. Two witnesses may well arrive at differing opinions, leaving room for advocates to argue, judge and juries to judge.

Example of studies in each discipline is:

- A study in medical diagnosis to find out the relationship between handwriting and medical diagnosis was funded by the National Institute of Child Health and Human Development. Littleton Meeks of Meeks Associates used a computer to analyse the handwriting of children with Attention Deficit Hyperactivity Disorder. This computer-aided diagnosis tool called Dadisp is supplied and supported by Adept Scientific (Laboratorytalk, 2003).
- Study on personality assessment by a company called Datagraph. A computer-aided handwriting analysis system called Forensic Graphology has been developed which combines forensic handwriting analysis with personality assessment techniques. The database which was copyrighted in 1990, was derived from the empirical knowledge of European scholars, from research in the United States and from the 72-year experience of Datagraph's Certified Professional Forensic Graphologists (ASGS) (Datagraph, Inc., 2003a).
- The successful study on forensic handwriting analysis is the development of computer-assisted handwriting analysis tool developed at the State University of New York at Buffalo (SUNYB) and is 98 percent effective in determining the authorship of handwritten documents. This is the first peer-reviewed scientific validation that each person's handwriting is individual and this was supported by the National Institute of Justice. The SUNYB research was cited in the 29 April 2002 decision of the U.S. District Court for the Eastern District of Pennsylvania. Sargur Srihari, principal investigator and Distinguished Professor in the Department of Computer Science and Engineering, spearheaded the effort (Goldbaum, 2002).

GRAPHOLOGY TECHNIQUE

The science of graphology is based on empirical research. To determine which handwriting traits correspond to a particular characteristic, graphologists study large numbers of handwriting samples from people who have been identified as having that

characteristic and look for traits that occur more frequently in their handwriting than in that of the general population (Scanlon and Mauro, 1992).

There are two methods in handwriting analysis, namely, the French approach and the German approach. The French approach is also called atomistic or the isolated trait method where the handwriting is broken down into its various components and examined separately. The German approach, also called holistic or gestalt approach, judges handwriting as a whole where one isolated element does not mean anything outside of the context of the complete picture. This approach analyses the sample in terms of the arrangement on the page, the form of the writing and also the movement. It gives an intuitive impression of the entire writing and is able to make certain assumptions about the writer. Neither the holistic nor the isolated method is the “best”, but when used in combination, it provides the most complete picture of the person’s disposition. Today, professional graphologists use a combination of both methods (Lowe, 1999).

It is believed by the graphologist that graphology works because people add their own characters to their handwriting. When someone writes, his or her emotions and characters are reflected in the piece of writing. The handwriting in turn provides clues containing crucial information on the emotions and characters of the individuals (Richards, 2004).

Graphology can identify well over 300 aspects of personality by examining loops, letter spacing, slants, heights, ending strokes, etc. Each symbol in a given handwriting sample is interpreted as a personality trait. Every aspect of a sample is treated, from the text layout to every single letter written. Although graphologists may differ in their opinions and interpretations of criteria, there are some in common. In most systems, the slant of the letters is very important.

Below are a few positive applications to illustrate (Tew, 2001).

- **Slant:** The emotional makeup of an individual is seen in the slant of the up strokes in the writing. The slant of the writing is considered a global trait (one that affects all of the other traits in the personality). A right slant indicates an individual who is warm-hearted, adventurous, sociable, enthusiastic, courageous and spontaneous. A left slant indicates someone who is loyal, cautious, secretive, reflective and able to make decisions based on past experiences. An upright slant indicates a person who is practical, level-headed and has a common sense and a logical approach. A mixed slant indicates an individual who has artistic ability, is flexible and loves variety.
- **Size:** Large writing indicates an individual with initiative, liveliness, enthusiasm, generosity, imagination and the ability to make emotional judgements. Small-sized writing indicates an individual with good concentration, precision, thoroughness, modesty and intensity.
- **Letter forms:** Garlands indicate an individual who is friendly, easygoing and empathetic. Arcades show a person who is protective and good at keeping secrets and also loves tradition. Angles indicate someone who is industrious and determined, this person will always need to complete the task. Wavy lines imply that their writer is flexible and a good mediator who likes to keep his options open.

GRAPHOLOGY IN CAREER GUIDANCE

When making significant career decisions, it is important to recognise a few key characteristics about ourselves so that we make choices that are well suited to us. It is helpful to clearly understand what we are interested in, what our strengths and abilities are and what our personality type is. Having self-awareness about these attributes will help us to choose a career that will bring a sense of satisfaction.

There are now many assessment tools on the market. One type of testing that is becoming increasingly popular is personality assessment. Personality tests are effective tools to employers for screening out candidates with undesirable characteristics, such as those with a bad attitude or poor work habits. It is also a valuable self-assessment tool for job seekers or those whose interests have changed in career directions and who is planning for his personal development.

Personality traits cannot be accurately determined through interviews and cognitive ability test. They need to be assessed using instruments designed to measure the different aspects of personality that are job-relevant. According to Dr. Shreya Sarkar-Barney, who has a PhD in Industrial Organisation Psychology, two of the most well-supported and well-documented classification systems are “Big Five” and Dr. John Holland’s “Career Personality Theory”.

The Big Five is generic model with five characteristics: Openness to change, Agreeableness, Conscientiousness, Extraversion and Neuroticism (also known as emotional stability). Of these five traits, only Conscientiousness, Extraversion and Neuroticism have been consistently associated with job performance. Unlike “Big Five” personality tests that measure broad job performance related traits, Holland’s Career Personality Theory is best known for matching personality types to different jobs. Holland’s Realistic, Investigative, Artistic, Social, Enterprising, and Conventional model is widely used for career counselling, fitting people with interests and compatibilities to over 1,300 jobs (Sarkar-Barney and Williams, 2003).

The six personality types and career categories of John Holland’s are:

- Realistic category includes skilled trades, technical and some service types.
- Investigative category includes the sciences and some technical types.
- Artistic category includes the creative arts, musical and literary types.
- Social category includes educational and social welfare types.
- Enterprising category includes managerial and sales types.
- Conventional category includes office, clerical and those working with numbers and data.

According to Mark Hopper, President of Handwriting Research Corporation, an analysis of handwriting can most accurately determine which of Holland’s six types or combination of types a person actually belongs to. It is used in conjunction with psychometric testing to create character profiles and can be the final arbiter for a job position. The following illustrations are the sample handwritings typical of each personality type (Hopper, 1996):

I LIKE A JOB TO BE FUN
MIGHT POSSIBILITIES, GOOD WORKING RE-
QUALITY AMONG ALL STAFF, BOTH MAINE
I WANT TO BE ABLE AT THE
THAT I HAVE GIVEN MY EMPLOYER
I SAT AT HOME I WANT TO BE

Realistic Type—Simple and Plain Printing Style

I would like to see my computer screen to the
day you are working on your 1st birthday
To be a challenge - a new accomplishment
achieved by a check from a bank of a woman
who worked her way into the bank that
the man for her success was that she had
found the computer with the internet & a
computer that has been for you a while

Investigative Type—Tiny Script, Illegible and Stripped Down Letters

If you finished with the
city & D.H. I mailed
I'd like to have it. as
I need it, before mail
was you stuff and me

Artistic Type—Tiny Script, Illegible and Stripped Down Letters

I forgot to see
a pink form re
our "Stress" system
several of the re

Social Type—Rounded, Forward Slant and Long Ending Strokes

Here is the 10-
sample that you
Did you get

Enterprising Type—Large Letters, Forward Slant and Bold Appearance

Your employee is sincerely
providing a positive and safe
environment for all employees
of importance is effective co-
with each employee. Better
individual and group needs is

Conventional Type—Meticulously Made and Carefully Constructed Letters, Consistent Spacing Between Words and Lines

Source: The handwriting samples were taken from the article "Do You Date the Lawyer or Cowboy?" by Mark Hopper.

GENERAL ISSUES RELATED TO GRAPHOLOGY

Graphology as an assessment tool has been criticised. It appears, however, to be increasingly popular. It is used infrequently in the United States and Canada but is widely used in hiring in France (Steiner, 1997) and in Israel. It was reported that 85% of French firms routinely use graphology in hiring of personnel (Levy, 1979; Steiner and Gilliland, 1996). Ben-Shakhat et al., (1986) stated that in Israel, graphology is used more widely than any other single personality measure.

According to Bradley (2003), more than 100 companies have experimented with graphology. Some U.S. companies that have used the technique included Xerox, Citibank, Bristol-Meyers, Allied Signal and Hewlett-Packard. The statistical evidence of how many companies are using graphology is difficult to obtain because graphologists are not allowed to disclose their clients' details due to confidentiality. On the other hand, users are reluctant to admit to have any association with it because it could be that graphology is used as a secret weapon or some may see it as a potential area for union dispute (Rafaeli and Klimoski, 1983).

It is unfortunate that scientific research has found that there is no clear correlation between handwriting behaviours and basic personality patterns. Although some psychologists believe that the subject is worth further study, the existing research is almost uniformly inconclusive. The reasons for this situation could be (Datagraph, Inc., 2003b):

- The lack of conforming standard in graphology that leads to different standards adopted by different graphology institutions or training centres. This further complicates scientific analysis of graphology.
- Majority of the graphologists are self-taught from popular books or correspondence school.
- Using personal validation by asking the subject to validate the analysis result.
- A failure to explore and utilise the computer and digital technologies available.

In order for graphology to gain a place as a validated science, the graphology community must make a great effort to overcome the above-mentioned issues. The effort includes (Datagraph, Inc., 2003c):

- Unifying the graphology standard in the definitions, techniques and measurement methods and standardising the training and certification process.
- Using reliable and valid research methods to conduct a research.
- Following the trend in computer and digital technologies to increase the reliability of graphology.

Even though the scientific researches are not encouraging, however, some reports suggested that graphology is quietly gaining acceptance (Koehler, 2001). While it is undeniable that graphology is an interesting and sometimes useful procedure, its validity is a matter of public debate and uncertainty and the use of graphology tests in personality assessment is a personal choice made by individual or company. Graphology, however, is not accurate all the time due to behaviour and personality changes as life progresses. Other non-personality information such as experience and education must be weighted when making a decision.

HANDWRITING ANALYSIS SYTEM

As computer technologies grow, and considering the amount of time, exhaustion of repetitive analysis, complexity of the processes and the ability to produce reports to clients in a timely manner, graphologists have realised the importance to computerise the handwriting analysis process.

There are many computer-aided handwriting analysis systems in the market, with most for commercial purposes. In the research for this project, five computerised handwriting analysis systems have been identified. Graphologists sponsor these systems with the aim of promoting the use of graphology by providing an overview of how handwriting analysis works for non-graphologists. Besides the above-mentioned systems, the respective websites include comprehensive information about graphology. Certainly, systems like these are unable to examine one's personality in detail. For an accurate analysis, the service of an experienced graphologist is required.

Jerral Sapienza's Self-Analysis

HWA.ORG sponsored this online handwriting analysis system. The system was written, engineered and maintained by Jerral Sapienza, a handwriting analyst and computer teacher with more than 30 years experience in analysing handwriting (HWA.ORG, 2004).

The system works by asking the user several questions about different aspects of their handwriting or the handwriting sample the user is looking at. The user will be asked to choose one answer from the list of possible answers. The system will then produce a report based on the answers given. Figure 1 shows the screen shot of the system.

A system guide is provided to use this system effectively. Users could review the standard format or some of the examples and then prepare their handwriting sample. Help is also available if the user is uncertain about some of the handwriting analysis terms. Users are asked to rate the user interface and accuracy of the report produced by the system.

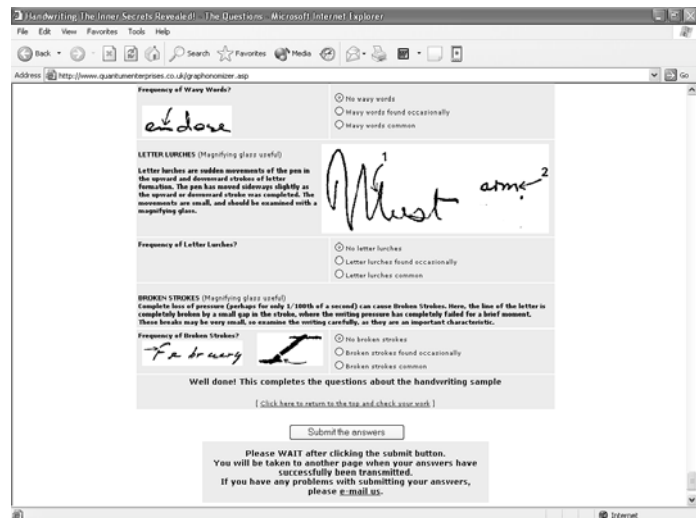


Figure 1. Screen Shot of Jerral Sapienza's Self-Analysis.

Andy Hunt's Graphonomizer

Quantum Enterprises sponsored this handwriting analysis system called Graphonomizer. Graphonomizer was originally created by Andy Hunt in 1992 and adapted in 1996 for use on the World Wide Web. It was developed using well-established scientific procedures, objective evidence derived from statistical analysis and the research studies of many scientific investigators in laboratories throughout America and Europe (Quantum Enterprises, 2004).

Before users start their analysis using the free service, they are asked to prepare the handwriting sample according to detailed instructions given. The system will then guide the users through a series of questions. When the answers to the questions have been received, the results will be automatically transferred to the Graphonomizer computer program, which will use the scores to compile a personality bar chart and produce a personality profile. The

chart shows the scores for the eight personality traits of the subjects, namely, independence, assertiveness, submissiveness, perfectionism, ambition, aggression, extraversion and worldliness, scoring from 0 to 10 on each. Upon completion, users have to click the ‘Submit’ button and the analysis report will appear on the computer screen.

The report is a complete analysis which contains about 500 to 1,200 words, depending on the number of characteristics shown in the handwriting and a personality chart with scores for eight major personality traits. The handwriting analysis system was rated 76.2% accurate by its users. Figure 2 shows the screen shot of the handwriting analysis questions.

Figure 2. Screen Shot of Andy Hunt's Graphonomizer.

Handwriting University's Handwriting Wizard

Handwriting Wizard is an online free handwriting self-test system owned and sponsored by Handwriting University. Users are asked to prepare a cursive handwriting sample on unlined paper for the analysis (Handwriting University, 2004). Users then start their analysis by answering a series of questions and matching the prepared handwriting sample with the examples shown. The text-based report will be sent to the user via email. Figures 3 and 4 show the screen shot of Handwriting Wizard and handwriting characteristic question for the letter “M” and “N”.

Figure 3. Screen Shot of Handwriting University's Handwriting Wizard

Figure 4. Screen Shot of Handwriting Characteristic Question for Letter “M” and “N”

Handwriting Wizard consists of nine handwriting characteristics. Each characteristic represents handwriting's uniqueness and element. Table 1 shows the nine characteristics for the Handwriting Wizard.

Each characteristic consists of one or more questions. A sample is given for each option when users need further assistance. There are certain questions where users are allowed to choose more than one options and there are some which can be skipped.

Table 1. Nine Handwriting Characteristics of the Handwriting Wizard.

Characteristics	Handwriting Elements
1	Slant
2	Size
3	Stem of the lower case "d" and "t"
4	Lower case "o"
5	Random strokes
6	Humps of the letter "M" and "N"
7	How high the "t-bar" crosses the stem?
8	Shape of the lower loop or tail of the letter "y" and "g"
9	Margin and spacing

Sheila Lowe's Handwriting Analyzer

Sheila Lowe's Handwriting Analyzer applied and followed German's theory of handwriting analysis called Gestalt or holistic graphology concept. There are 65 personality traits that are important and identifiable in handwriting. For every trait, there is a list of handwriting characteristics to match (currently 5,000 signs). The software can describe up to 65 personality traits and uses up to 5,000 signs to do this (RI Software Inc., 2004). Figure 5 shows the screen shot of Sheila Lowe's Handwriting Analyzer.

At least 10 of the categories should be completed in order for a report to be generated. It is up to the user how many more they want to choose. However, the more they do, the more accurate the report should be.

Sheila Lowe's Handwriting Analyzer is set up with 14 generic job profiles, but in real life every company has its own individual needs and requirements. The Job Profile Manager allows the business user to create his own profiles, based on a specific job description, so he can most closely match the candidate to the job requirements. To create a new job profile, the Profile Manager gives the user a list of about 40 general statements about jobs. The user ranks each statement on a scale of five, in relation to how important that statement is to the particular job under consideration. The computer uses the scores to create the job profile.

After a job profile has been selected, the computer compares the scores from the handwriting analysis already done to the scores required for the job. The resulting graph shows how close the candidate comes to a perfect match.

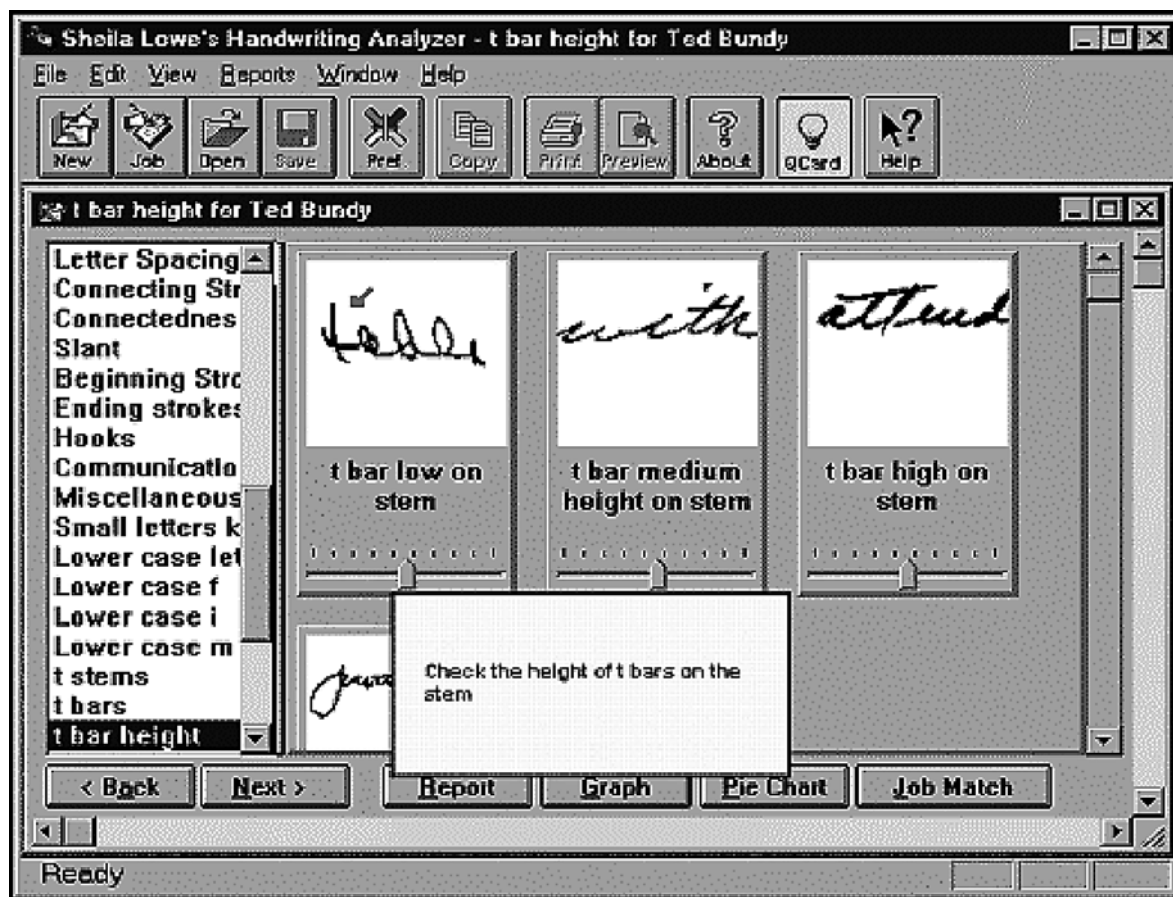


Figure 5. Screen Shot of Sheila Lowe's Handwriting Analyzer.

Garth Michaels' Handwriting Analyst

Handwriting Analyst is a graphology software developed by Garth Michaels, Dorothy Hodos and Marilyn Maze. The latest release for Handwriting Analyst is version 5.0. For every new analysis, the user is required to provide his/her name, writing hand (left-handed or right-handed) and gender. Handwriting Analyst consists of 60 multiple-choice questions. Each question provides several choices for user to select. Illustrations of each choice are provided by on-screen samples. Examples of the characteristics are baseline slope, baseline variability, slant, margins, word spacing, expand, connectedness of small letters, connection of capitals, punctuation, pressure and more (Michaels et al., 2004).

There are two types of questions, "Related Items" and "Unrelated Items". "Related Items" are questions where the user can only pick one item or option. "Unrelated Items" are question where the user can select more than one option. Figure 6 shows the screen shot for Garth Michaels' Handwriting Analyst.

There are 2 types of reports, Brief Report and Detailed Report. The Brief Report has most of the information that is found in the Detailed Report. The Brief Report provides a thumbnail sketch of the writer's personality. The difference is that the Brief Report uses brief, concise statements while the Detailed Report contains detailed explanations of each characteristic. Detailed Report offers more elaboration and explanation of each trait.

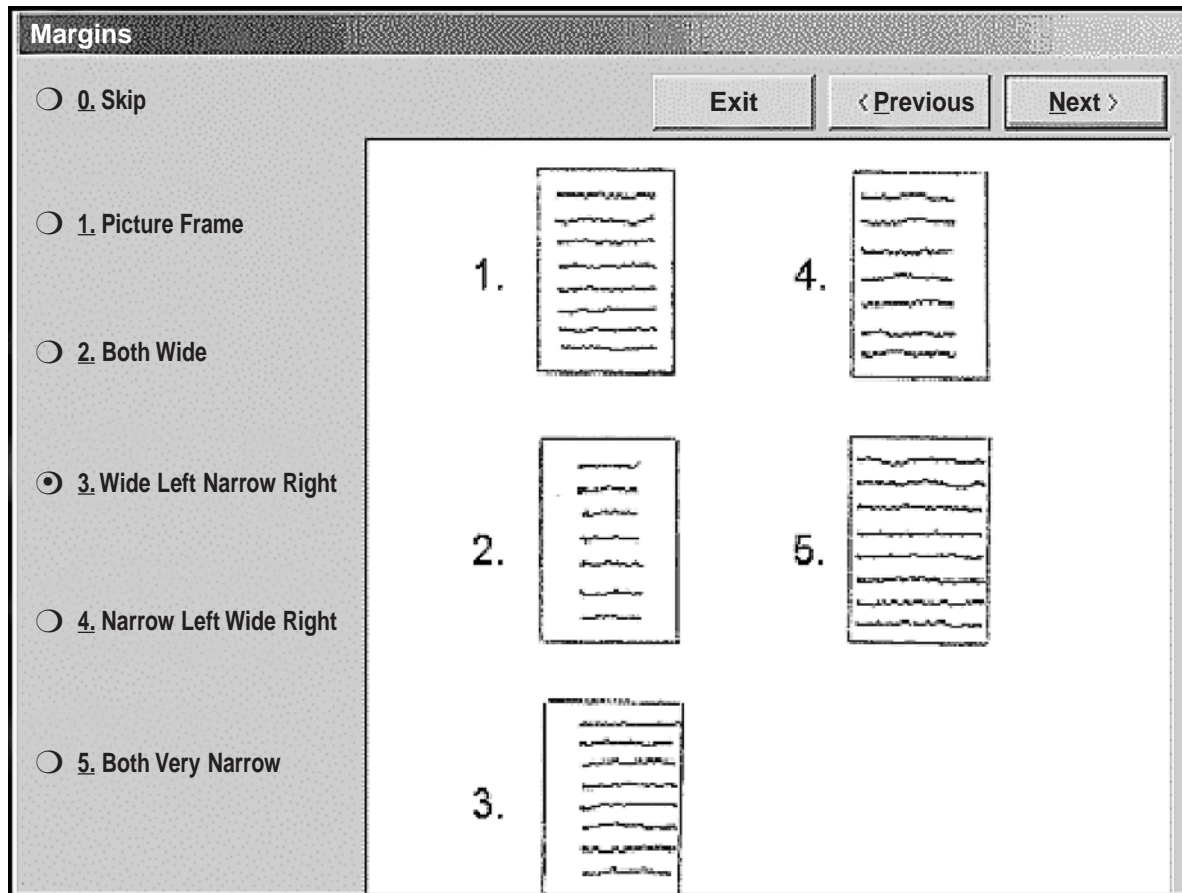


Figure 6. Screen Shot of Garth Michaels' Handwriting Analyst.

Summary of Handwriting Analysis Systems

There is no best handwriting analysis system. It depends on the types of usage and their application areas. The right graphology software is the one which can suit most needs and usage. Each of the computerised handwriting analysis system discussed above has its own uniqueness. The more users understand the handwriting analysis, the more accurate and comprehensive the analysis result will be. Table 2 shows a summary for the five computerised handwriting analysis systems.

Table 2. Summary for the Five Computerised Handwriting Analysis Systems.

No.	System Name	Description	Application Areas
1.	Jerral Sapienza's Self-Analysis	Web-based computerised handwriting analysis system. The system works by asking user several questions about different aspects of their handwriting or the handwriting sample the user is looking at. Platform independent. It is a free handwriting analysis system. Text-based report type.	Personality Assessment

No.	System Name	Description	Application Areas
2.	Andy Hunt's Graphonomizer	Web-based computerised handwriting analysis system. The system will guide the user through a series of questions. When the answers to the questions have been received, the results will be automatically transferred to the Graphonomizer computer program, which will use the scores to compile a personality bar chart and produce a personality profile. Platform independent. It is a free handwriting analysis system. Text-based, graph, bar chart and pie chart report type.	Personality Assessment
3.	Handwriting University's Handwriting Wizard	Web-based computerised handwriting analysis system. The system consists of 9 handwriting characteristics. Each characteristic consists of one or more questions. Platform independent. It is a free handwriting analysis system. Text-based report type.	Personality Assessment
4.	Sheila Lowe's Handwriting Analyzer	Applying Gestalt or holistic graphology concept. Handwriting characteristics such as line spacing, margin, slant and pressure are represented by categories. At least 10 categories must be completed to generate a report. A standalone system. Runs on Windows. Price for Professional version is USD474 and Personal version is USD174. Text-based, graph, bar chart and pie chart report type.	Personality Assessment and Employment
5.	Garth Michaels' Handwriting Analyst	The system consists of 60 multiple-choice questions. Each question represents one handwriting characteristic. A standalone application. Runs on Windows and consists of handwriting and signature. The price for Handwriting Analyst is USD39.95. Test-based report type.	Personality Assessment

CONCLUSION

Graphology has opened an option for those who would like to understand their personality better. There is no doubt that handwriting analysis holds a lot of fascination for many people. As a method of personality assessment, handwriting analysis has been validated by research, using both empirical and clinical procedures. As with any science, graphology remains the subject of further research and validation. However, the validity and reliability of the results and reports produced by the systems are a major concern for the users. Perhaps, before the system is released to the market, the graphology professional body should ensure that the quality of the system has met the graphology standards. As handwriting reviews a person's personality and is related to the psychological aspects of a person, psychology measures such as psychology questionnaires can be used to determine

and verify the results of the analysis to ensure that validity, accuracy and reliability of the results.

Certainly, the whole process of graphology cannot be replaced by the computerised system because the analysis needs to be carried out by analyst who has a good knowledge and experience in graphology or by a trained graphologist. Those processes that can be computerised are data collection, access and retrieval, analysis checklist and generation of reports. The main advantage of computerisation is making the information more easily-accessible for future research and development. The computerised system should be developed for different user groups such as non-graphologist and graphologist. For non-graphologist, perhaps, some pre-requisite graphology requirements such as basic training to identify the style of handwriting are required before they start using the system to ensure the accuracy of the handwriting analysis.

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