Online ISSN : 2249-460X
Print ISSN : 0975-587X

Global Journal

of Human-Social Sciences: A

Arts & Humanities - Psychology



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A Cluster Analytic Approach

Highlights

Form and Style of Urban

Digital Games Cause to Brain

Discovering Thoughts, Inventing Future

VOLUME 15 ISSUE 11 VERSION 1.0

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Volume 15 Issue 62 was originally issued as A11

Global Journal of Human-Social Science: A
Arts & Humanities - Psychology

Volume 15 Issue 62
Originally issued as A11

Global Journal of Human-Social Science: A
Arts & Humanities - Psychology

Volume 15 Issue 11 (Ver. 1.0)

Open Association of Research Society

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Global Journal of human-social science: a
Arts & Humanities - Psychology
Volume 15 Issue 11 Version 1.0 Year 2015
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-460X & Print ISSN: 0975-587X

The Anonymous 1821 Translation of Goethe's *Faustus*: A Cluster Analytic Approach

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Abstract- The scholars, Frederick Burwick and James McKusick, published at Oxford University Press, Faustus from the German of Goethe translated by Samuel Taylor Coleridge in 2007. This edition articulated the result that Samuel Taylor Coleridge is the actual translator of the anonymously published translation Faustus from the German of Goethe (London: Boosey: 1821). The present article tests that result. The approach to test this result is stylometric. Specifically, function word usage is selected as the stylometric criterion, and 80 function words are used to define a 73-dimensional function word frequency profile vector for each text in the corpus of Coleridge's literary works and for a selection of works by a range of contemporary English authors. Each profile vector is a point in 80-dimensional vector space, and 5 different cluster analytic methods are used to determine the distribution of profile vectors in the space. If the result being tested is valid, then the profile for the 1821 translation should be closer in the space to works known to be by Coleridge than to works by the other authors.

Keywords: vector space, PCA, MDS, SOM, Isomap, Centroid, variance, stylometric, authorship verification.

GJHSS-A Classification : FOR Code: 160502p



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The Anonymous 1821 Translation of Goethe's *Faustus*: A Cluster Analytic Approach

Refat Aljumily

Abstract- The scholars, Frederick Burwick and James McKusick, published at Oxford University Press, *Faustus from the German of Goethe translated by Samuel Taylor Coleridge* in 2007. This edition articulated the result that Samuel Taylor Coleridge is the actual translator of the anonymously published translation *Faustus from the German of Goethe* (London: Boosey: 1821). The present article tests that result. The approach to test this result is stylometric. Specifically, function word usage is selected as the stylometric criterion, and 80 function words are used to define a 73-dimensional function word frequency profile vector for each text in the corpus of Coleridge's literary works and for a selection of works by a range of contemporary English authors. Each profile vector is a point in 80-dimensional vector space, and 5 different cluster analytic methods are used to determine the distribution of profile vectors in the space. If the result being tested is valid, then the profile for the 1821 translation should be closer in the space to works known to be by Coleridge than to works by the other authors. The cluster analytic results show, however, that this is not the case, and the conclusion is that the Burwick and McKusick result is falsified relative to the stylometric criterion and analytic methodology used. Where, in Popperian terms, falsification does not mean 'prove to be false'. It means that evidence which contradicts a hypothesis has been presented, and it is up to the proposer of the hypothesis either to show that the evidence is inadmissible or irrelevant, or else to emend the hypothesis accordingly. The rest of the article is organized as follows. In section 1 we give the motivation for doing this work. In section 2 we provide a quick introduction to the 1821 *Faustus* translations that we hope will shed some light on the problem. In section 3 we discuss the previous attempts to attribute the 1821 *Faustus* to Coleridge. In section 4 we outline the methodology used to address the 1821 *Faust* translation authorship debate. In section 5 we present data preparation. In section 6 we present our main analytical arguments deriving the evidence to refute Coleriadge'a authorship of *Faustus*. We also present the clustering results obtained in section 6. In section 7 we provide additional interpretation for the analytical results obtained in section 6.We conclude in section 8 with a summary of the results, and discussing open questions and possible future directions.

Keywords: *vector space, PCA, MDS, SOM, Isomap, Centroid, variance, stylometric, authorship verification.*

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I. Motivation

In 2007, Oxford University Press published an edition entitled *Faustus from the German of Goethe translated by Samuel Taylor Coleridge* edited by Frederick Burwick and James McKusick, who presented evidence that Samuel Taylor Coleridge was the author of the anonymous English translation of selections from Part I of Goethe's *Faust* published by Thomas Boosey in 1821.

I began to read the book as one who was convinced that the Burwick and McKusick's evidence was sufficient to attribute the translation to Coleridge and, as a stylometrist whose concern is largely methodological, to look closely at the stylometric section (2007: 311-30). I finished it with the conviction, though I am not the first to point it out, that there are grounds for doubt. The analysis was partial and many attribution questions, which I became fascinated with, remained open.

McKusick's general approach was to use quantitative evidence based on formal indicators of texts, which is in my view, is a correct and instructive methodology. But it was obviously not possible to give a definitive answer to the question of Coleridge's involvement in the translation of *Faust*. This is the central inquiry of this article.

Given the methods used in his analysis, McKusick drew reasonable conclusions though the methods were insufficient to give more than indicative, that is, inconclusive results. To his credit, McKusick was aware of this and made it clear that the conclusion was suggestive only. McKusick, however, encourages scholars and stylometrists (2007: 315-16, 327, 330) to pursue further analysis and examine the attribution questions raised by the *Faust* translations, together with the hypothesis advanced in his and Burwick's edition, by using more advanced stylometric methods.

McKusick's approach, however, inspired me to contribute with further evidence to the current literature about the *Faust*-Coleridge authorship question. In the end my conclusion is quite different. It is based on more advanced multivariate analytical methods, a large number of variables proposed as distinguishing features, and hundred texts. More is said about these in the subsequent discussion.

The scope of my empirical approach is extensive. I have examined not only Coleridge's and other likely candidates' involvement in the translation of

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Faust, that is, Staël, Soane, Anster, Boileau, and Gower, but also some other authors of the nineteenth century, namely, Wordsworth, Shelley, and Byron. The aim is to examine Coleridge's literary style relative to the styles of contemporary authors to see where *Faustus* fits among them.

II. Introduction

Goethe published his *Faust*, the first part of the drama, in 1808. The play attracted considerable publishing interest and publishers of English translations of German's literature decided to translate and publish the play and make extracts from of it available to English readers. Over six partial English translations were issued in about the same time; i.e. the first probably in 1813. These editions included the 1813 English translation of Staël's version that was published in the original French (the translator is Francis Hodgson according to Burwick and McKusick), Percy Bysshe Shelley (1815, 1822), George Soane (1820, 1821, and 1825), John Anster (1820), the 1820 anonymous translation (the translator is Daniel Boileau according to Burwick and McKusick), Leveson Gower (1823), and the 1821 anonymous translation (Boosey edition) (the translator is ST Coleridge according to Burwick and McKusick).

III. Previous Attempts to Attribute the 1821 *Faust* to Coleridge

The 1821 Boosey translation has been variously attributed to the translator of Staël's version (Francis Hodgson), George Soane (1820, 1821, and 1825), John Anster (1820), Daniel Boileau (1820), Leveson Gower (1823), and, recently but strongly, to Samuel Taylor Coleridge (1821). The current scholarly consensus is that none of these translators ever claimed to be the author of Boosey's 1821 edition of *Faust*.

Paul Zall, a scholar of English Romanticism and American literature, was one of the first researchers to suggest in 1971 a connection between Coleridge and the 1821 translation of *Faustus*. He observed stylistic similarities between the 1821 *Faust* and Coleridge's two tragedies, namely *Remorse* (1813) and *Zapolya* (1817), and also he sensed echoes of Coleridge's mastery of blank verse in the translation. Literary scholars of the time were not satisfied with the claiming that Coleridge actually translated *Faust* in 1821. They argued that the case for Coleridge could not be accepted on the available evidence; a great deal of instinct and intuition was used to support the case for Coleridge. To accept it, additional compelling proof should be reached.

Following Zall's attempt, Frederick Burwick joined McKusick to re-examine Zall's conclusion with much greater detail. The two scholars make their case that Coleridge was the author and the result included in the 2007 edition referred to above. However, this edition has been much debated and the stylometric analysis has been called into question by many reviewers. Details of which are available in Goethe's Faust/Coleridge as translator of Goethe's Faust.

In this edition, Burwick's case is based on two types of argument (i) circumstantial historical evidence and (ii) qualitative stylistic criteria, and these are available in (1: xv-xxxv). On the other hand, McKusick's case is based on quantitative stylistic criteria, that is, stylometry. The general nature of the article is stylometric and, for this reason, the reminder of the section will focus exclusively on McKusick's stylometric analysis that included in the 2007 edition.

McKusick's role was to find quantitative evidence in support of the joint claim of Coleridgean authorship (1: 312-30). To this end, he compiled a digital electronic corpus comprising:

a) Four plays by Coleridge: *Remorse* (1813) and *Zapolya* (1817) written by him, and *The Death of Wallenstein* (1800) and the *Piccolomini* (1800) which he translated, as already noted.
b) The anonymous Boosey 1821 translation of *Faust*.
c) Five other translations of *Faust* by Hodgson (1813) Staël (1809), Soane (1821 and 1825), Anster (1820), Boileau (1820), and Gower (1823).

Two types of data were abstracted from the texts comprising the corpus:

i) Relative frequencies of word lengths.
ii) Relative frequencies of 10 selected function words.

For (i), McKusick counted all two-letter words, all three-letter words, and so on up to eight-letter words for each of the *Faust* translations and for each of Coleridge's four plays and plotted the word-length frequency distribution for each of these relative to the distribution of the 1821 *Faustus*. He then applied the chi-squared test in order to determine whether or not the differences between the word-length distributions for the anonymous 1821 *Faust* on the one hand and the five other translations and Coleridge's plays on the other were statistically significant, reasoning that if the differences were significant, then the author of the 1821 *Faust* could not be the author of the other texts in the corpus. The finding was that the differences between the 1821 translation and Coleridge's *Remorse* were not significant, but that the differences between the 1821 translation and all the other texts were. His conclusion was that, although such analysis of relative word length frequency "is no longer considered definitive or particularly reliable by stylometrists, it is nevertheless possible to gain interesting and suggestive results by looking at this kind of data" (p.316), and that "although these are not definitive results, they are indeed suggestive. These findings suggest that there is a general similarity in vocabulary, as reflected in word-length distribution, between *Remorse* and the 1821 *Faustus*. There is no such resemblance between the 1821 *Faustus* and any one of the other contemporary translations of *Faust*. This finding is consistent with our

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hypothesis that Coleridge is the author of the 1821 *Faustus*, and our findings also suggest that, of all of Coleridge's dramatic works, *Remorse* is the one that most closely resembles the 1821 *Faustus* in its vocabulary" (p.318).

For (ii), McKusick identified a set of 10 function words, counted their frequencies in each of the texts in his corpus, and then proceeded as for (i) above: the distribution for the 1821 *Faustus* was graphed and compared to the graphs for each of the other texts, and the differences between each textual pair were tested for statistical significance. And, again as in (i), no significant difference was found between the 1821 *Faustus* and *Remorse*, but the differences between *Faustus* and the other texts were significant.

The conclusion was that "on the basis of the relative frequency of these ten keywords, none of the other contemporary translators is a likely candidate for authorship of the 1821 *Faust*" (p.327) and that "this finding does not 'prove' that Coleridge is the author of the 1821 *Faustus*, but this finding is fully consistent with that hypothesis, and (in the absence of other strong contenders) it does indicate a strong likelihood that Coleridge is the author" (p.325).

Speaking about this, McKusick's quantitative stylometric argument supports the case for Coleridge's authorship of the 1821 *Faustus*, but only weakly. Average word length is an intuitively attractive stylistic criterion, but one whose effectiveness in characterising authorial style and in distinguishing one author from another is at the very least not demonstrated, and there are indications that it is in fact ineffective. McKusick explicitly recognised this in the relevant foregoing quotation, and only went so far as to say that the "general similarity in vocabulary, as reflected in word-length distribution, between *Remorse* and the 1821 *Faustus"* is "suggestive". Function word distribution is a much better stylistic criterion, but Mckusick again claims only that it does not "prove" Coleridge's authorship, but is only "consistent with" it. McKusick appears to realise that the real problem lies not in the selection of stylistic criteria, fundamental as this is, but with logic. A statistically significant difference between two texts relative to some given criterion tells one only that the texts are different, not that they are by different authors, and a statistically non-significant difference that the texts are similar in terms of that criterion, but not that they are by the same author. McKusick's results can only serve to support Coleridge's authorship in this instance. He is thus right in claiming only that his results are "consistent with" the hypothesis of Coleridge an authorship, but his further claim that they "indicate a strong likelihood" of it is unjustified.

Overall, therefore, the view of the present article is that McKusick goes beyond the evidence in the title of their re-edition of the 1821 *Faustus: From the German of Goethe Translated by Samuel Taylor Coleridge*, and this motivates the present discussion to test the result of Coleridge's authorship.

IV. Methodology

The present article is concerned specifically with authorship verification (2, 3, 4): Given a disputed text and a corpus of works by that author, the aim is to decide whether he or she wrote the text. In the present case, this becomes: Is Coleridge the author of the 1821 Boosey translation of Goethe's *Faust*?

The answer to this question is based on falsifiable methodology. This methodology approaches the problem not by proposing and attempting to justify McKusick's result that Coleridge was or was not the author, but by testing an existing one: the Burwick and McKusick result that he was.

Multivariate methods are used to achieve this. Multivariate methods are essentially variations on a theme: cluster analysis. Cluster analysis aims to detect and graphically to reveal structures or patterns in the distribution of data items, variables or texts, in *n*-dimensional space, where *n* is the number of variables used to describe an author's style. The class of methods for doing so all depend on finding structure in a high-dimensional data space, and then using that structure either to formulate or, in the present case, to attempt to falsify McKusick's result. This class includes hierarchical clustering, principle components analysis, multidimensional scaling, self–organizing map, and Isomap.

a) Hierarchical clustering

Hierarchical cluster analysis constructs clusters in terms of measures of spatial distance among data vectors in the space as the basis for clustering. It provides more information than non-hierarchical ones in that it not only identifies the main clusters, but also its constituency relations relative to one another as well as their internal structures (5,6,7). The hierarchical analysis was in a three-stage procedure. The first step was the calculation of the distances between all possible pairs of vectors. The second was the construction of a one-dimensional symmetric matrix of the distances calculated in the first step. The third step was the construction of a hierarchical tree based on the symmetric matrix of distances.

b) Principal Components Analysis

PCA is a non-hierarchical linear method based on preservation of data variance. The principal components analysis was in a four-stage procedure. The first step was the construction of a symmetric proximity matrix for distances among vectors. The second was the construction of an orthogonal basis for the covariance matrix in such a way that each axis was the least-squares best fit to one of the *n* directions of maximum of variation in D. The third was the selection of dimensions; we removed the axes along which that had

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relatively little variation, leaving an *m*-dimensional basis for D where $m<n$. The fourth step was projection into *m*-dimensional space, which yielded data set D' that is dimensionality-reduced but still had the property of maximum variation in D, that is, the total combined variance of all vectors (8, 9).

c) (Metric) Multidimensional scaling

MDS is a dimensionality reduction method which can be used for clustering if the data dimensionality is reduced to three or less. It uses variance preservation as its criterion for keeping as much of the information contained in the original set of data as possible in dimensionality reduction, MDS preserves the proximities among pairs of objects on the basis that the proximity is an indicator of the relative similarities or dissimilarities among the physical objects which the data represents, and therefore of information contained in: if a low-dimensional representation of the proximities can be built, then the representation preserves the information contained in the original data (8,10).

d) Self-Organizing Map

SOM has been successfully used in a wide variety of research applications to represent a set of high-dimensional vector points in a low dimensional space without reducing the dimensionality of the original space, while preserving the relationships among the input data vectors. In other words, SOM provides a topology preserving projection from a high-dimensional to a low-dimensional space; that space is usually two-dimensional. The property of topology preservation means simply that the projection preserves vector neighborhood relations. Vectors that are near each other in the input space are projected to nearby map units in the SOM. The SOM can therefore be used cluster analysis method by projecting data of arbitrary dimensionality into two-dimensional space and visualizing any structure in the data in a variety of ways (8, 11).

e) Isomap

Isomap reduces dimensionality by working on a nonlinear rather than on a linear distance matrix. Given a linear distance matrix D_L generated from a data matrix *M*, Isomap approximates the geodesic distances by first deriving a neighbourhood graph to represent different points of a manifold, that is, a geodesic distance matrix D_G is approximated mathematically by computing graph distances from D_L, and D_G is then the ground for dimensionality reduction using either the classical or the metric least squares MDS mathematical procedure. Graph distance approximation to geodesic distance is a widely used paradigm in data analysis to approximate geodesic distance between different points of a manifold using graph distance (8, 12).

V. Data Preparation

a) Stylistic criteria

In authorship attribution and text clustering, data preparation is the key to obtaining accurate clustering results and to achieve this, variables must be carefully selected. Data analysis should be confined to only and all the important variables that contribute meaningfully to an author's style. In this attempt, the data matrix is built up of only and all the important function words within the texts. The reason for using function words representation is that the frequency distribution of function words is taken to be an indicator of an author's syntactic usage, and, because syntax is largely independent of topic, is regarded as a more reliable criterion for author attribution. Moreover, the experimental results of authorship attribution indicate that function words representation gives good results in identifying the style of a text and distinguishing between a set of authors. Equally important, most studies seem to agree that up till now function word representation has been proven to be giving much better results than any other, more sophisticated stylistic criteria to authorship style. (13, 14, 15).

b) Constructing a target corpus and text pre-processing

The standard tradition of creating a corpus for attribution test has always been based on the assumption that the corpus is large and representative of an author respective writings. Therefore, a relevant issue in the current application is what size the corpus should be in order to be representative of Coleridge' literary style. The corpus on which the clustering analysis of Coleridge corpus is based consists of 363 texts of Coleridge's literary output in prose, verse, and drama. However, significant variations in the lengths of these texts are found. Some texts are large enough in size to be analytically practical; they are 31 texts and are shown in Table (1A). Other texts are too short to achieve a good level of analytical accuracy; they are 332 texts and are amalgamated and assigned into 21 collections of texts according to their appearance in journals and poetry collections; they are treated as unitary texts. These are shown in table (1B).

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Table 1 : Coleridge 52 texts in prose, verse, drama

Alice1828 Ancient Mariner1798 Autumnal1788 Christabel1797 Deathofchatterton1790 Dejection1802 Delinquent1824 Departing1796 Destiny of Nations Fears1798 France1798 Friend1818 Grenville1799 Happiness1791 Improvisatore1827 Oldman1798 Osorio1797 Piccolomini1800 Picture1802 Pixies1793 Recantation1798 Religious Musings1795 Remorse1813 Robespierre1794 Tears1820 The Nightingale 1798 The Wanderings of Cain1798 Three Graves1798 ToWordsworth1807 Wallenstein1800 Zapolya1816	Adaptations An Old Man's Diary 1871 Anthology 1795 Biographia1817 Cambridge intelligencer Early Recollections1837 Epigrams and Jeux D'esprit Fragments Friendship offering,New Mirror, magnet Juvenile poems Literary Remains 1836 Literary Souvenir Lyrical Ballada1798 Metrical Feet Miscellaneous(later day) Morning Chronicle Morning Post Sibylline Leaves1817 The Courier Unfinished Letters Watchman
(A) the 31 long texts	(B) the aggregated 21 texts

For authorship testing and drawing firm conclusions, three other corpora are used: Coleridge and *Faust* corpus, Coleridge plus his contemporary authors plus *Faust* corpus, and Coleridge and contemporaries, *Faust*, and other translators of *Faust* corpus. The corpus on which the clustering analysis of Coleridge's literary style relative to the literary style of *Faust* is based consists of 53 texts. The corpus on which the clustering analysis of Coleridge's literary style relative to the literary style of Wordsworth, Byron, and Shelley is based consists of 73 texts; 5 texts to Wordsworth, 5 texts to Shelley, and 10 texts to Byron. The corpus on which the clustering analysis of Coleridge's dramatic style relative to the dramatic style of the 1821 anonymous translator of *Faust*, Wordsworth, Byron, Shelley, and the five other translators of *Faust* is based consists of 23 texts. One requirement, however, is that at each stage of data preparation, the texts must be pre-processed prior to data representation. In the current case, all the four corpora of texts are reduced to lists of tokens where only function words are kept. That is, content words, punctuation, contractions, editorial comments and footnotes, line numbers, and so on are removed. 193 function word types are identified in this way; these are the basis for the clustering analyses.

c) Data representation

Texts are represented mathematically using the vector space model (VSM). The reason for this is that it is conceptually simple as well as convenient for measuring stylistic similarity within texts. Using the four corpora in conjunction with a set of function words list, a 52 x 193 data matrix D, a 53x193 data matrix D1, a 74 x 193 data matrix D2, and a 23 x 193 data matrix D3are computationally generated, where each of the 52 rows of D represents a different Coleridge an text, each of the 193 columns represents a different function word, and the value at any $D_{i,j}$ (for i = 1..52, j = 1..193) is the

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number of times that function word *j* occurs in text *i*. The same is applied to other data matrices (D1, D2, and D3). The texts are given, where necessary, the first or second name or initials as given in the work used. For example Mariner.txt is given for 'the Rime of the Ancient Mariner' and Sibylline.txt is given for 'Sibylline Leaves'. Each matrix row vector therefore represents a function word lexical frequency profile for the corresponding text. Since each function word variable in the profile has a label, the profile gives a representation of which function word is in a text and which is not. However, it is observed that the data matrices D, D1, D2, and D3 have some characteristics that can skew the validity of the clustering results. First, there are many super fluous-function words that are included in the data matrices. Second, there is a very substantial variation in the lengths of the texts in the data matrices: some texts are very long while others are very short. These matrices have to be transformed prior to analysis.

d) Significant and insignificant Function Words

Frequency is the simplest criterion for selecting function words from D, D1, D2, and D3: those function words which occur most often in the texts are judged to be the most important, and those which occur least often are taken to be least important and can therefore be discarded. With respect to clustering, the fundamental idea is that a variable should represent something which occurs often enough for it to make a significant contribution to the clustering of the data vectors. The assumption is that if an individual author uses certain function word frequently in a text, then that function word tells or denotes something about that text or that author's preferred syntactic usage. To select function words based on frequency, given an *m* x *n* frequency data matrix *D*; the value at *Dij* is the number of times function word *j*, for *j*=1…*n*, occurs in text *i*, for *i*=1…*m*. The frequency of occurrence of function word *j* across the entire corpus of texts is then:

$$freq(Fj) = \sum_{i=1\ldots m} F_{i,j}$$

Frequencies for all the columns data matrices (D, D1, D2, D3) are calculated, the function words are sorted in descending order of frequency, the most frequent function words are selected, and the less frequent function words are eliminated from (D, D1, D2, D3). Substantial dimensionality reduction can be achieved by applying this criterion to data matrices (D, D1, D2, D3).

e) Text length Normalization

The 52 texts in D, the 53 texts in D1, the 73 texts in D2, and the 23 texts in D3 vary substantially in length. This is shown in Figure (1).

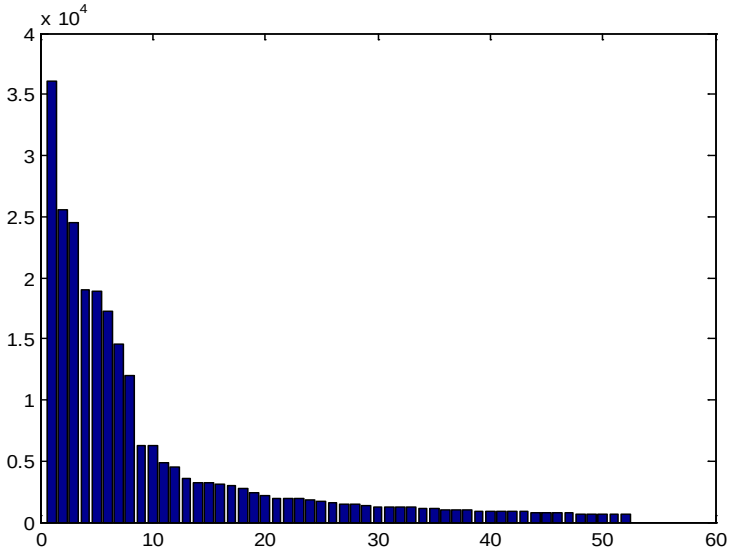


Figure 1 : Variation in the lengths of the texts in the Coleridge matrix D

This disparity of length, if uncorrected in D, severely skews any clustering results based on D. For example, Figure (2) shows a Ward's Method hierarchical analysis of D.

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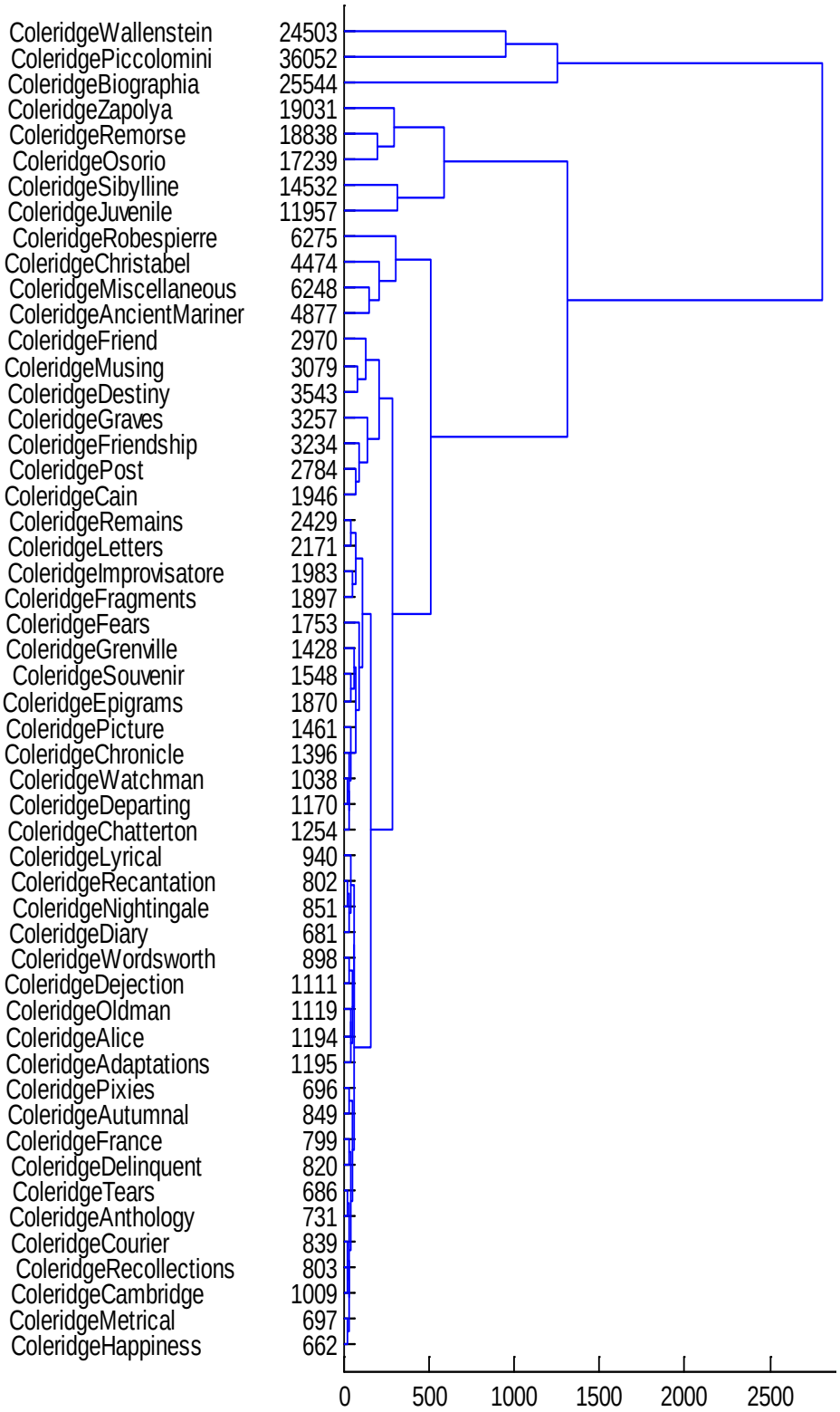


Figure 2 : Ward's hierarchical analysis of Coleridge's matrix D

The number to the right of each of the text names is the number of words in the text; there is a clear and very strong tendency to cluster by length.

The problem now is that we need a clustering structure that shows the distances among the texts based on the function words similarity, not length. To do this, the row vectors in each data matrix are normalized to adjust the disparity in length among the texts in such a way as to eliminate variation in document length as a factor affecting the frequencies. This normalization is relative to mean document length using the equation:

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$$\mu = \sum_{i=1....m} \frac{length(Ci)}{m}$$

The mean length across all texts are calculated. In each row vector, the count for a function word is multiplied by the mean text length, then divided by the total number of frequency counts occurring in that row vector. The effect of normalization using mean document length is that the values in the row vectors that represent long texts are decreased while the values of the row vectors that represent the short ones are increased. For texts that are near or at the mean, little or no change in the corresponding row vectors occur. The overall effect is that all the corresponding texts are now in effect all the same length and are ready for clustering.

f) Data dimensionality and the elimination of low variance variables

Clustering of texts depends on there being variability in their characteristics; identical texts having the same function words cannot be validly clustered. Where the texts to be clustered are described by function words, then the function words are only useful for the purpose if there is significant variation in the values that they take. In the current application, therefore, we looked for function words with substantial variation in their values, and ignored function words with little or no variation. Function words with no or little variation are removed from data matrices as they contained little information and would complicate cluster analysis by making the data higher-dimensionality than it needs to be. Mathematically, the degree of variation in the values of a variable is described by its variance. The variance of 193 function word values is the average deviation of those values from their mean. The standard definition of variance for an m-row x n-column vectors matrix in which the columns represent 193 function words and the rows represent the texts they describe, the variance of the columns is:

$$v = (\sum_{i=1.\ n} (x_i - \mu)^2) / n$$

The function word frequencies of the columns in each data matrix are calculated using the above equation and sorted in descending order of frequency magnitude. The column vectors are sorted in descending order as shown in Figure (3).

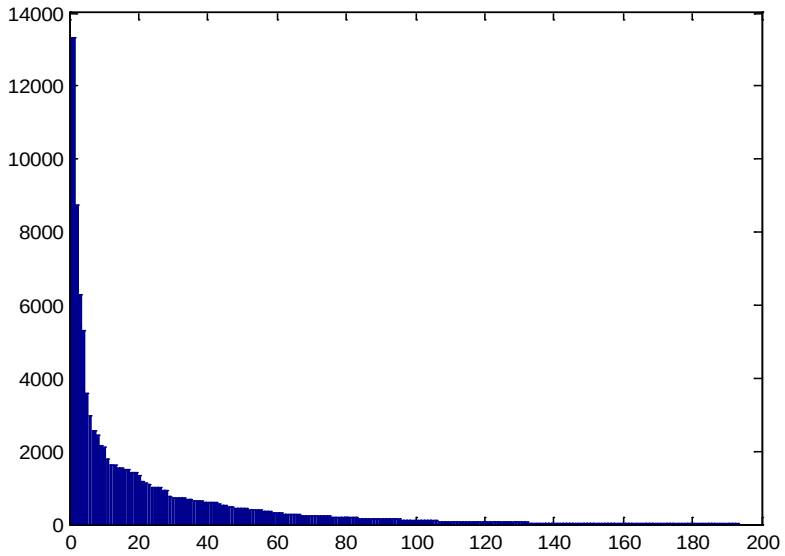


Figure 3 : The distribution of function word frequency data matrix D

In this figure there are a few relatively high-frequency function words, a moderate number of medium-frequency ones, and a large number of low-frequency ones. There is considerable scope for dimensionality reduction here; a conservative reduction would be to keep the 80 highest-frequency columns in D, discarding the rest. The same procedure is applied to the other data matrices. That is, function word columns 193 to 80 are removed on the grounds that they contribute little to differentiation of the texts. The selected 80 highest-frequency function words are shown in Table (2):

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Table 2 : The types 80 high-variance function words in figure (3)

Word type	Word type	Word type	Word type	Word type	Word type	Word type	Word type
the	may	this	mine	must	you	these	by
my	its	which	nothing	more	but	out	our
with	up	so	without	us	no	nor	or
as	down	at	of	can	what	other	one
from	once	their	that	where	we	himself	she
will	through	shall	his	could	if	in	such
they	within	like	him	most	yet	me	some
then	and	upon	on	till	would	for	those
them	it	should	her	whom	an	all	before
when	he	into	who	to	than	your	though

g) Clustering validity

In the present application the generated clustering results are validated in two ways:

i. The degree of consistency between the distance matrix underlying the cluster tree and another distance matrix is measured using Cophenetic Correlation Coefficient Measure (5, 6, 8). Based on this, the trees generated by Average Linkage for D, D1, D2, and D3 seem to fit these data matrices more well than the clusterings produced by Single, Complete, and Ward analyses Coefficient Measure above.

ii. A range of clustering methods are applied to the same data matrices, each method based on a different view of what constitutes a cluster and how clusters can be identified, and interprets such agreement as is found among them as an indication of the intrinsic or 'true' structure of the data. Specifically:

- PCA is a linear method based on preservation of data variance.
- MDS is a linear method based on preservation of distance relations among objects in data space.
- Isomap is a nonlinear method based on preservation of distance relations among objects in data space.
- SOM is a nonlinear method based on preservation of data topology.
- Single Linkage hierarchical clustering is a linear method based on preservation of data topology.
- Complete, Average, and Increase in Sum of Squares hierarchical clustering are all linear methods based on preservation of distance relations in data space, though they differ in how distance among clusters is defined.

VI. The Clustering Analysis

The data matrices (D, D1, D2, D3) are analysed using five different clustering methods. all of these methods agree with each other in clustering the texts in each data matrix. The clustering analyses of D, D1, and D2 are not shown in this article. There is no hope of being able to show (36) analyses in such an article, but this section addresses them only briefly to the extent to which presentation of the analytical results is necessary for the purpose of this article. The clustering analyses of D showed that there is structure in Coleridge's usage of function words but that usage varies in accordance with genre. The clustering analysis of D1 supports the hypothesis of Coleridge as the author of the 1821 Boosey *Faustus*, and so is the clustering analysis of D2. This result has serious implications for the validity of the central tent of authorship attribution and the article does not take this similarity as evidence that Coleridge is the actual translator of the 1821 *Faustus*. This result suggests no more that Coleridge is a likely candidate for the authorship of *Faustus* since the researcher does not yet know if the five other translations of the play by other likely candidate authors are also closest in style to that of the 1821 text or not. This is where the translations of *Faustus* by de Staël 1813, Soane, 1821-1825, Anster 1820, Boileau 1820, and Gower 1823 come in. Now all the observations have been captured and the reminder of the discussion will switch to the final stage of the analysis by applying the clustering methods to D3 to see where in the data space the Boosey *Faustus* sits in relation to the locations of these authors in the space. Because the foregoing clustering results have identified that the Boosey *Faustus* clusters with closet dramas, and because the additional *Faust* translations also belong to this genre, only the closet drama (abbreviated CD) texts are clustered and the verse and prose texts are eliminated. This is done for clarity of presentation. D3 contains *Faustus*, the dramatic texts by Coleridge, Byron, Shelley, Wordsworth, and the translations of Faust by Staël, Soane, Anster, Boileau, and Gower. For this data matrix, we have the following clusterings:

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a) *Average hierarchical clustering of D3* (Cophenetic correlation coefficient: 8528):

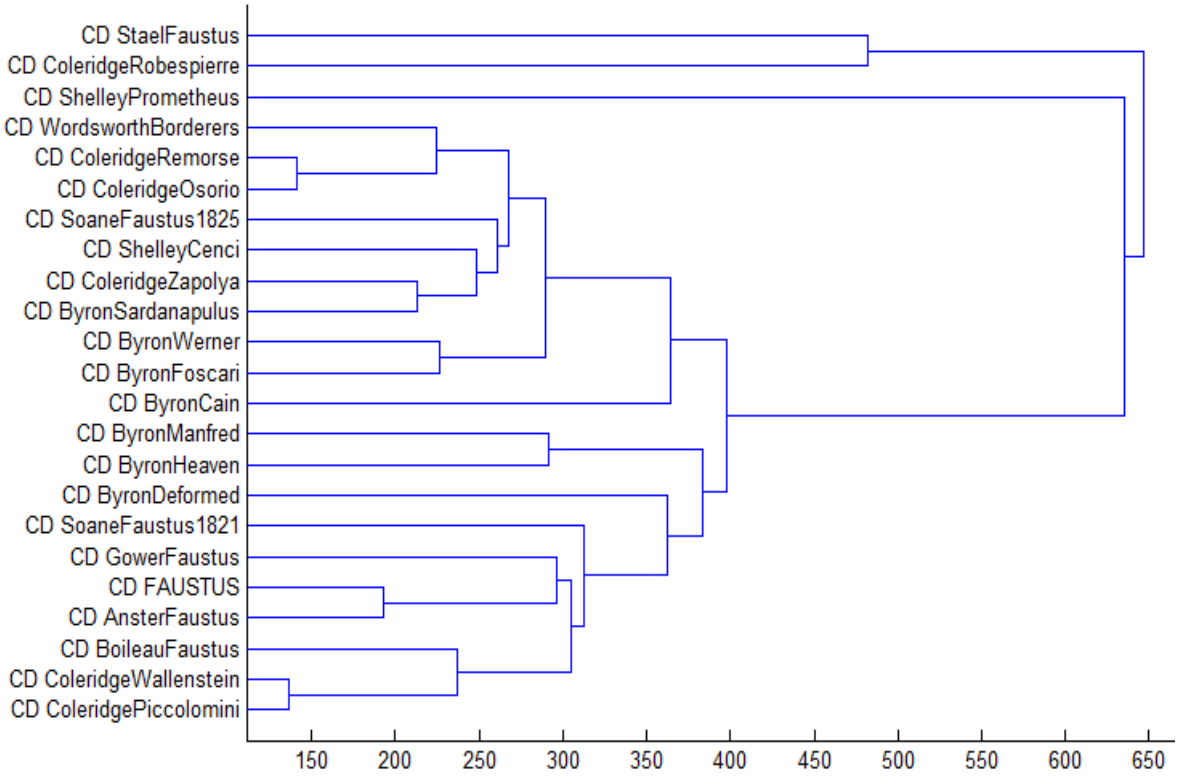


Figure 4 : Average Linkage. Cophenetic correlation coefficient: 8528

b) *PCA*

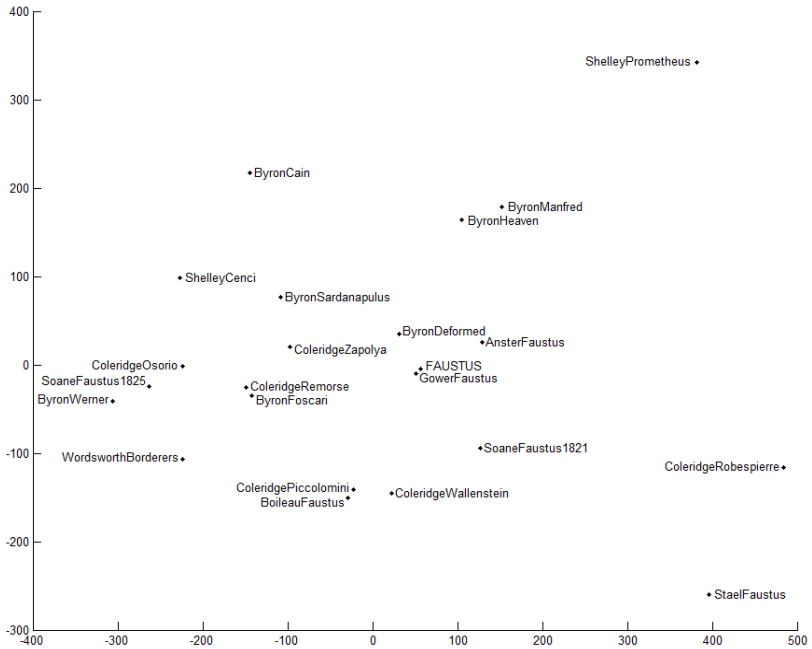


Figure 5 : PCA of D3

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c) *MDS*

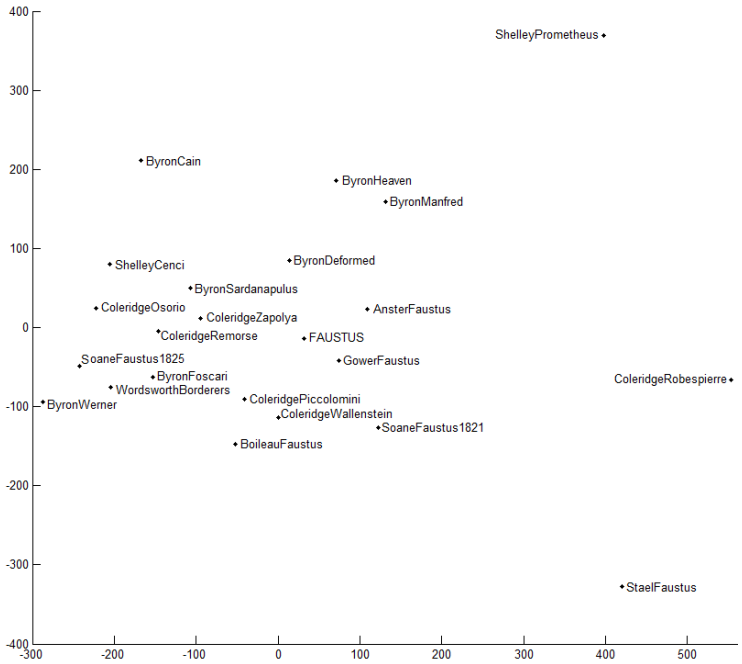


Figure 6 : MDS of D3

d) *Isomap*

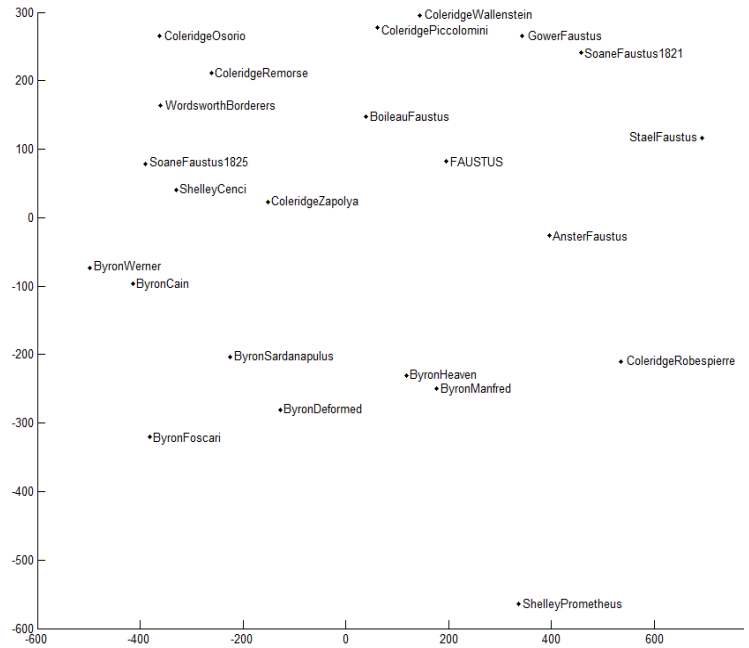


Figure 7 : Isomap of D3

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e) SOM

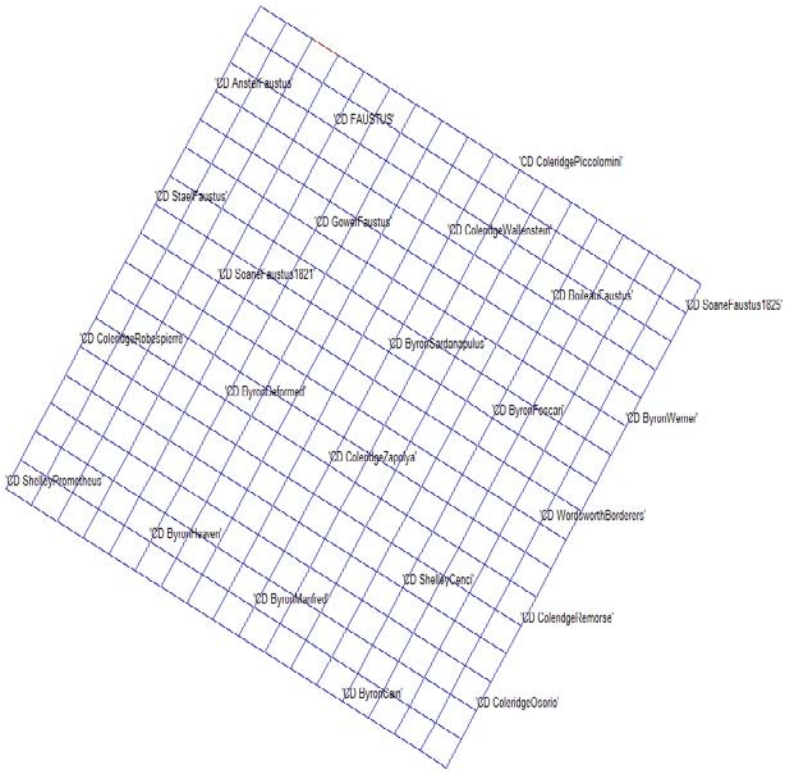


Figure 8 : SOM of D3

Upon closer examination of all the clustering results, the researcher observes the followings:

- The average hierarchical clustering method groups the closest dramas into three main clusters based on their similarity coefficients or relative similarity from one another. The first cluster consists of CD Stael *Faustus* and CD Coleridge *Robespierre* and the second cluster consists of one cluster representing CD Shelley *Prometheus* on its own. The third cluster comprises two main sub-clusters, each of which is further clustered into small groups of sub-clusters, and more specifically: the first sub-cluster comprises five sub-clusters: the first consists of CD Wordsworth *Borderers*, CD Coleridge *Remorse*, and CD Coleridge *Osorio*. The second consists of CD Soane *Faustus* 1825 on its own. The third CD Shelley *Cenci* CD Coleridge *Zapolya*, and CD Byron *Sardanapalus*. The fourth CD Byron *Werner* and CD Byron *Foscari*, and the last one consists of CD Byron *Cain* on its own. The second sub-cluster also comprises five sub-clusters: the first consists of CD Byron *Manfred* and CD Byron *Heaven*. The second CD Byron *Deformed* on its own. The third CD Soane *Faustus* 1821 on its own as well. The fourth CD Gower *Faustus*, CD *Faustus*, and CD Anster *Faustus*. The researcher calls this sub-cluster a sub-cluster of interest (2), as will be discussed in more detail in the remainder of this chapter. The fifth and the last sub-cluster consists of CD Boileau *Faustus*, CD Coleridge *Wallenstein* and CD Coleridge *Piccolomini.*
- The Boosey *Faustus* always occurs near the same group of other authors in all the analyses. Based on a very close inspection of the analyses in figures (4-8): in the average hierarchical analysis, CD Gower *Faustus*, CD *Faustus*, and CD Anster *Faustus* are placed together in one sub-cluster texts, where, more specifically, CD Gower *Faustus* is clustered with the sub-cluster combining both CD Anster *Faustus* and CD *Faustus*. In PCA, CD *Faustus* is placed close to both CD Gower *Faustus* and CD Anster *Faustus*, but is relatively closer to Gower's. In MDS, CD *Faustus* is placed close to both CD Gower *Faustus* and CD Anster *Faustus*, but again is relatively closer to CD Gower *Faustus* than Anster's. In Isomap, CD *Faustus* is in the neighborhood of Anster, Boileau, and Gower: it is a compromise between Anster *Faustus* and Boileau's, but far apart from Gower's. Finally, in SOM, CD *Faustus* is a compromise between CD Anster *Faustus* and CD Gower *Faustus*, i.e. it is close to both of them equally.
- Among these authors, the Boosey *Faustus* is always closer to Anster than to any other author, including

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Coleridge. More specifically, *Faustus* is no longer closest to Coleridge, but to other authors and in particular to Anster and Gower; there's some variation in degree of closeness to these two, but the overall picture is clear.

- No matter how many other authors are included in the test or how many other texts are added to the corpus, that is, more authors or texts won't help: Anster and Gower will always be closer than Coleridge to *Faustus*.
- Based on the above, therefore, this means that the hypothesis that Coleridge was the author of the 1821 Boosey *Faustus* is falsified by the methodology used in this test.

Finally, having established *that* Anster and Gower are closer to Boosey than to Coleridge or any other of the authors included here, it remains to show *why,* that is, what aspect or aspects of function word usage underlie this result. A centroid-based analysis is used to answer this question. That analysis proceeds as follows.

- From D3, the data matrix used for the preceding cluster analyses, the row representing work by each of the authors are abstracted and, where there is more than one work, the centroid is calculated. Thus, all the rows of D3 representing work by Coleridge are abstracted and their centroid is calculated, and the same is done for Byron and Shelley; for authors represented by only one work, that is, the various *Faust* translators and Wordsworth, the corresponding single matrix row is used.
- The set of individual matrix rows and calculated centroids are co-plotted as bar plots and the amount of variation in the variable centroids are calculated. A variable with a larger amount of variability in its centroid than the other variables in a set of data is taken to be the most important discriminator between the authors or the clusters of interest because there is much change in the values of that variable throughout text row vectors.
- Because it is difficult to interpret the very crowded bar plots for the full 80 variables, only the dozen variables with the largest variation in relative bar plot heights are shown in what follows.

The centroids of most important function words to each of the authors are first calculated, as shown in Table (3) and the resulting centroids are then bar plotted onto a bar chart, as shown in figure (9):

Table 3 : Function word frequency centroids for 10 authors

Word type	Anster	Boileau	Byron	Coleridge	Faustus	Gower	Shelley	Stael	Soane	W.worth
of	475	363	213	381	400	293	315	733	316	338
from	115	75	45	88	103	85	64	81	90	76
or	49	26	43	36	33	56	45	28	46	39
and	585	508	308	477	601	533	407	413	470	447
with	176	156	75	150	169	154	90	147	158	104
then	35	35	21	48	71	40	12	26	83	29
yet	30	21	25	44	33	74	23	22	45	21
To	406	433	208	357	428	445	168	560	365	381
by	80	57	34	62	55	58	39	78	79	69
that	181	152	84	192	167	133	105	220	165	226

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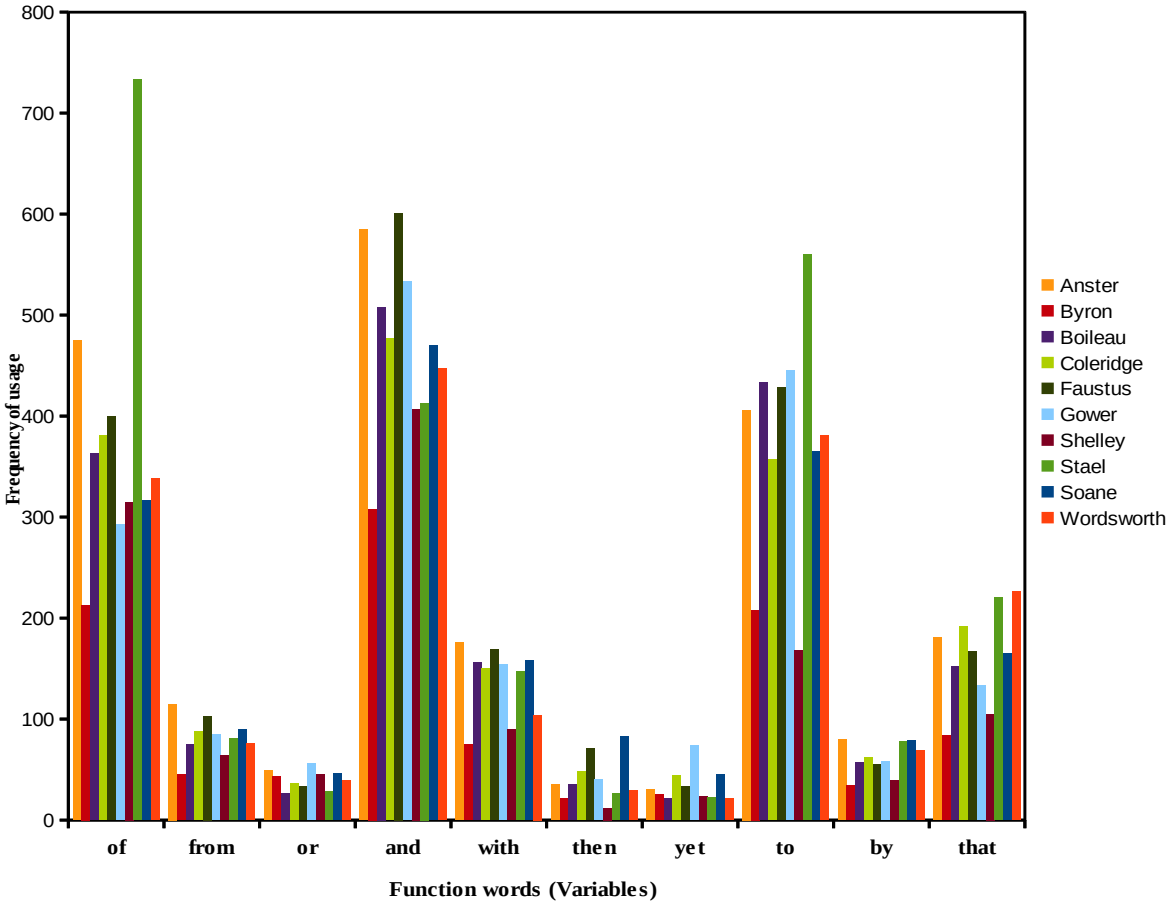


Figure 9 : Bar plot for 10 authors based on centroid-analysis of 10 FWs

where:

The number and type of function words per column has been represented along the horizontal axis, and the centroids per column up the vertical axis. Each one of the function words has its own a label on the horizontal x-axis that holds a value on the vertical y-axis of the bar chart, where the height of each bar represents the variable centroid containing the values of a given variable in each text row vector. The bars are displayed arbitrarily following the order of the function words, which are given in table (3) rather than ordered by size from the smallest to largest or vice versa.

From Table (3) and the plot in Figure (9), it can be seen that there is pattern of differences among the 10 authors considered in the study with respect to the most important functions words and this yields empirically stylistic criteria showing how each author's usage of a set of 10 function words, and, more particularly, how the usage of this set of 10 function words by Anster, Coleridge, the 1821 anonymous translator, and Gower does not overlap with that of each other's or any other author's usage. For example, Staël shows a higher usage of 'of' and 'to' than in any other author, the 1821 anonymous translator shows a higher usage of 'and' than in any other author, Shelley shows a lower usage of 'then' than in any other author, Wordsworth and Boileau show a lower, though an equal, usage of 'yet'. Boileau and Staël show a lower usage of 'or' than in any other author. For others, the usage of this set of 10 function words is somewhere between these extremes. For example, 'of', 'and', and 'to' usages are very frequent in Anster's *Faustus*; 'of', 'and', 'that', and 'with' usages are much lower in Byron's than in any other author; 'and', 'of', 'to', and 'that' usages are more frequently in Boileau's than in some other authors; 'of', 'and', 'to', and 'that' usages are frequent and consistent in Coleridge's dramas and so are in Wordsworth's *The Borderers*. The usage of 'then' is much higher in *Faustus* than in any other author. Finally, 'from', 'or', 'with', and 'by' are marked with relatively consistent or frequent usages among all the authors and therefore do not distinguish between them.

All in all, based on the centroid values in the Table (3) above and their corresponding plots in the Figure (9), we can draw the following results:

- Function words 'that', 'and', and 'with' are the most important in determining the distance relations in the foregoing cluster analyses. This is based on the amount of variation in each variable-centroid, which is calculated and shown in Table (4):

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Table 4 : The amount of variation in the centroids of 10 FWs for 10 authors

Word type	Amount of variation
of	19.9977.1222
from	379.7333
or	90.3222
and	7733.2111
with	1226.5444
then	487.3333
yet	280.1777
to	13050
by	256.9888
that	2114.0555

- Function words 'and' and 'with' are those with respect to which Anster and the 1821 anonymous translator are closest, and 'with' is that to which Gower and the 1821 anonymous translator are closest.
- Coleridge's usage of this set of 10 function words varies from the other authors, and in particular from the 1821 anonymous translator, Anster, and Gower in terms of his usage of 'that', 'to, 'then', 'from', 'and', and 'of', which is either higher or less than them.

This is a substantive, empirically-based criterion for distinguishing the styles of the authors which have been included in the study, with respect to the closet drama genre. The general conclusion is that the 1821 *Faust* translation is mathematically similar to the translations of the play by Anster and Gower and that the function words 'of', 'yet' and 'that' are the main determinants for that similarity. This is a plausible result for Anster and Gower, but it is by far not the only interpretation. The next section will justify this claim.

VII. Additional Interpretation

Since all of the three translations appear in such close proximity, the conclusion would surely be that either Anster or Gower translated the 1821 *Faustus* (Boosey edition); or at least that Anster and Gower are likely the best candidates for its authorship, considering Anster as the most probable translator among the translators tested and Gower among the less likely. In such a case, the question is: can the 1821 anonymous *Faustus* be attributed to Anster or should it rather be attributed to Gower based on this new evidence? The answer is no. The argument is that it is perhaps not so surprising that the 1821 *Faustus*, claimed by Burwick and McKusick for Coleridge, is closer to two other contemporary translations of the play by Anster and Gower. There are only a limited number of function words that can be used to translate the German words of the original; and the possibility of borrowing from one author to another is also stronger. Many examples could be given of such borrowing of function words (and other style features), but few will suffice here to support this claim. These are taken from Anonymous (trans.) *Faustus from the German of Goethe.* London: Boosey and Sons, 1821; John Anster (trans.) 'The Faustus of Goethe', *Blackwood's Edinburgh Magazine*, vii, 1820; and Leveson-Gower (trans.) *Faust: A Drama By Goethe.* They are quoted, identified by the verse lines, and then highlighted.

Line number	Anster 1820	Anonymous 1821	Gower 1823
354-364	Alas! *I have* explored Philosophy, *and* law, and medicine, *And* over deep divinity have pored, Studying with ardent and laborious zeal *Andhere* I am *at last, a* very foal, *With* useless learning cursed, *No* wiser *than* at first! They call *me* doctor— and *I* lead These ten years past *my* pupils' creed,	Now *I have* toil'd *thro' all;* philosophy, Law, physic, *and* theology: alas All, all I have explor'd; *and here* I am *A* weak blind fool *at last:* in wisdom risen *No* higher *than* before: Master *and* Doctor They style *me* now; and *I* for ten long years Have led *my* pupils up and down, thro' paths Involv'd *and* intricate, only to find	WITH medicine *and* philosophy *I have* no more to do; *And all* thy maze, theology, At length have waded *through* *And* stand *a* scientific fool, As wise as when *1* went to school. 'Tis true, *with* years of science ten, A teacher of my fellow men, Above, below, *and* round about,
1675-1682	What can'st *thou* give, poor miserable devil. Thinkest *thou* that man's …*By suchasthou art?* wretch, what canst *thou* give? But thou hast food which satisfieth not,… And Play; *at which none ever* yet hath won,	*Thou* miserable fiend? can man's high spirit, Full of immortal longings, be *by such* *As thou art,* comprehended? *Thou* profferest food Which mocks its eager appetite; yellow gold,…Games *at which nonee'er* won; enchanting	Not Translated

As can be seen there are very remarkable function words agreement occurring not by simple coincidence in these lines and other passages of the 1821 *Faustus* translation and the two translations by

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Anster and Gower: specific function words and (short phrases) used by Anster were used by the anonymous translator of the 1821 *Faustus* and Gower as well as some function words used by the anonymous translator of the 1821 *Faustus* were used by Gower in his own translation (though Gower borrowed less frequently than the 1821 anonymous translator). And this has the effect of clustering the three translations by Anster, the anonymous translator, and Gower together.

VIII. Conclusions and Further Reserach

The historical and, to some degree, the literary-critical evidence suggest Coleridge an authorship, but the stylometric evidence, based on what is currently regarded as the best stylometric criterion and using objective and replicable mathematical methods, suggests otherwise. The study has analysed Coleridge's plays and has found they are mathematically quite distinct from the 1821 *Faustus* translation. However, it is important not to over-interpret this result since the present attribution attempt is based on a particular type of test, proximity in vector space, using a particular stylistic criterion, the frequency of function word usage. Other stylistic criteria and/or other types of test may well give a different result, and the next research step with respect to the Burwick and McKusick result is to devise other types of test based on other criteria. Any future study must, however, take account of the result of the present one, and until one or more such studies appear, the Burwick and McKusick result is abandoned. The article also has closely examined the Faust text and the texts by the 1821 anonymous translator of the 1821 Faust, Anster, and Gower and found that translating the words of the original text of *Faust* slides over into borrowing from one author into another.

Finally, the researcher, based on the use of clustering analytical methods, remains convinced that scholars cannot always assume that an individual who is attributed to a literary work was in fact the author.

IX. Acknowledgments

The author wishes to thank all those who dedicated their time answering my queries and providing me with valuable comments during the preparation of this study.

a) Conflicts of Interest

The author declares no conflict of interest.

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Global Journal of human-social science: a
Arts & Humanities - Psychology
Volume 15 Issue 11 Version 1.0 Year 2015
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-460X & Print ISSN: 0975-587X

The Emplotment of the US Capitalist Expression in John Steinbeck's *of Mice and Men*

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Abstract- The global economic state of affairs was shaken by the crisis of 1929. This situation witnessed the decline of British as a global hegemon and the promotion of the United States to be the potential economic leader. For nationalist reasons, artists and writers found it necessary to concretize the cultural basis of the country on which to set its economic system. This article studies John Steinbeck's fiction that embodies the insinuation of the existence of capitalism in the United States through its functionality. The main argument in this discourse analysis is that Steinbeck's methodology to address the US's capitalism resides in the representation through which characters expose that economic system and at the same time struggle to exclude other unwanted systems that are forcing their ways through.

Keywords: capitalism, representation, individualism, selfreliance, communism, cultural value, nationalism.

GJHSS-A Classification : FOR Code: 419999p



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I. Introduction

The 1929 World economic crisis has constituted a paradigm shift in the US entrepreneurial system. Thus the cultural belief in the capitalist system was shaken by the crisis in the sense to uproot it in the advantage of any eventual economic system, such as socialism. Because the capitalist principles have always connoted with those of individualism, to have a friend or to be part of a group of people was becoming the only alternative when the other system was failing. The proof of which could be grasped in the discursive analysis of Steinbeck's novel – *Of Mice and Men*. Now, does Steinbeck's literary work openly express the rootedness of the American economic system in capitalism? Or, is the narrative in that novel a critique of the plight of a certain stratum of the American society-the landless, poor, agricultural workers? This article studies Steinbeck's insinuating address to both capitalism and socialism through his fictional work. The accent is on the implications of the characters' behaviors that convey the messages about the two systems. If among the themes of the novel exists "the celebration of friendship," Lennie and George's friendship did not contribute to the economic progress of either of them. Rather, George's intelligence has been negatively consumed by Lennie's dullness. This means if George has been alone, he could have achieved success in his life. On the other hand, the predatory nature of human existence that has revealed the extermination of the weaker almost always constitutes aperversion of the relationship between employer and employee to the point of individual's strong will to be independent for a freer entrepreneurship.

The main arguments of this article turn around Kevin Attell's "An overview of *Of Mice and Men*," Marilyn Chandler McEntyre's "*Of Mice and Men*: A Story of Innocence Retained," and around Norma L. Goodrich's "Bachelors in Fiction, Through John Steinbeck and Jean Giono" among others.

In effect, *Of Mice and Men* is a novel that shows how hard it was in the times of the Great Depression. The difference between Lennie and George compared to the other migrant workers is that George and Lennie had each other. The novel shows how George takes care of Lennie who has a mental disability. Most of the migrant workers wanted to achieve the success of the American Dream that was different for every American. Lennie and George wanted to achieve their American Dream as well. Lennie and George's dream was to own a ranch and live off. Conversely, almost all the rest of the migrant workers, having heard of George and Lennie's project of managing their own ranch, decided to join them in their ownership, which is stopped by the tragic end of George's friendship with Lennie.

Through a discursive breakdown of Steinbeck's *Of Mice and Men*, this study is structured in two parts. The first is about the ethics of human relationship that is conducive to either a positive friendship for both or negative for either or both of them. Ethics here challenge the American cultural belief in individualism and self-reliance through which success is guaranteed. Because moral codes would impinge on individual freedom in partnership, the individual success or failure would only depend on the success or failure of the partner.

The second part is dealing with social realist and naturalist methodologies that insinuate the American capitalist economic system. In these realms, the individual desire to remove from the tension of the employer's treatment for a freer and non-controlled organization is synonymous with socialist early stages that also constitute a challenge to actual social situations. And, arguably, since socialism must fail in favor of capitalism, the good friendship of Lennie and George should be unsuccessful. And the incentives that this friendship has given to all the hands of the ranch to have a vision of a group of workers – masters of their own without control – must nosedive.

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II. The Ethics of Human Relationship and the Etiquette of the American Individualism

The celebration of friendship as a main theme raised in *Of Mice and Men* is worthwhile because of the usefulness of the friendly relationship to Lennie's protection. However, to consider the tragic end of that friendship as a success because George killed his dear friend out of protection is not far from considering it as a failure that breaks down the socialist shoot in the egg. This part studies John Steinbeck's treatment of friendship full of interest in a country where individualism is a cultural entity.

Very often the natural handling that Steinbeck gives to his characters' behavior consoles the readers wonder about his fiction. Why should we qualify George and Lennie's friendship as a good one that merits celebration? Realistically, numbing one's own freedom for the satisfaction of a relative cultivates inclination and good will from the other side. Therefore, celebrating the friendship of these two characters is to allude to the author's success in his fictitious arrangements that matches with nature or social rules. Thus Kevin Attell argues that

> Steinbeck's debt to and lineage from Social Realist and Naturalist fiction, then, is made clear through a reading of the way he constantly places his characters and narrative within the context of very specific and, more importantly, actual social situations. The narrative of *Of Mice and Men*–from George and Lennie's hopeful dreaming to the calamitous end to those dreams-is founded upon a rigorous analysis and critique of the encompassing structures of social organization and the ways they affect the people who must live within them.[1]

The actual social situation here is the failure of individualism caused by the Great Depression. In other words, the long standing capitalist economic system that prevailed from the industrial revolution to the 1930s is more or less collapsing. And the norms therein are dominated by individual endeavor to succeed in life without depending on a relative or friend.

Moreover, the United States of America had long struggled through McCarthyism against the Soviet Union's economic system. The latter system is naturally gaining the American society for the failure of the former. This does not imply that friendship did not exist before the World economic crisis. But the particularity of the one created by Steinbeck is the contextualization of a heavy dependence that might give birth to new social principles to the extent of jeopardizing the actual American economic perspectives.

Every worker on the ranch suffers from solitude. They have the feeling of amazement to see George and Lennie always together. They have finally joined them for a collective ownership of a piece of land. Marilyn Chandler McEntyre observes that,

> For George to dream of "making a stake" so he and Lennie can have their "little place" hardly seems culpable, based though it is on the very notions of private property, possession, ownership, and exclusion that relate capitalism to the sin of Cain. But for Steinbeck to make explicit that relationship between capitalistic pursuit of self-interest and the original crime of murder is to hack at one of the thickest roots of American culture.[2]

But Steinbeck's elaboration on the socialist formation of a group of workers constitutes a demonstration that concludes with failure. If George and Lennie's friendship is celebrated, it means that it has respected the ethics of human relation to yield the grouping of numerous people. Others in the ranch are attracted by many of their individual traits. These traits enhance the natural view of others on their innocence from some vices as beautifully attracting for sexual partner. Norare they united for sex, as their appearances could have shown. Rowland Molony observes the rallying characterizations in George and Lennie:

> Two features stand out among all these characters. One is their lack of sexual attraction, and the other is their relative inability with language. This should not be surprising. A crucial indicator of intelligence is a facility with language. And how can those who are palpably defective attract a mate? None of the individuals discussed here has physical beauty. Nor do they have any of the other (male) qualifications that seem to succeed in life and in fiction: like silky manners, wealth, power or that winning combination of a coarse nature and boorish manners that appears to succeed in romantic fiction. Nor do they have wit. Wit is an aphrodisiac. The boy in the group who makes the girls laugh is already streets ahead of the others. This raises the point about facility with language. If we have perception and the words to express our perception, then we are clever. And if that is accompanied by physical beauty then we are made for life. The simple-minded may well have charm and originality, but if the bottom line is suitability as a mate then they simply don't score.

[1] Attell, Kevin. "An overview of *Of Mice and Men*."*Literature Resource Center*. Detroit: Gale, 2015. *Literature Resource Center*.

[2] McEntyre, Marilyn Chandler. "*Of Mice and Men*: A Story of Innocence Retained." *The Betrayal of Brotherhood in the Work of John Steinbeck*.Ed. Michael J. Meyer. Lewiston: Mellen, 2000. 203-222. Rpt. in *Short Story Criticism*.Ed. Lawrence J. Trudeau. Vol. 194. Detroit: Gale, 2014. *Literature Resource Center*.

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This of course reinforces their poignant and isolated station in life.[3]

Suitable? No, neither Lennie is suitable for George and vice versa. The only suitability here is when one has to help the weak if they are strong. However, George complains, "I could get along so easy and so nice if I didn't have you on my tail. I could live so easy and maybe have a girl."[4]This complaint foreshadows Steinbeck's strategy that leads this friendship to a negative end or at least the liberation of George after having protected his friend under the death shelter. Because George spends all his time and energy to contain his friend's caprices, the pain of being isolated in this task is more felt than when he could be alone but using the fruit of his effort in his own advantage. Therefore, George's altruist performance with Lennie becomes unpraise worthy because of the fact that George is also an indigent. It is in this perspective that this relationship could be laudable in the sense that George endeavors in his friend's satisfaction being himself in need of what he gives out. That is amply sufficient to celebrate this friendship because a good gift should not be with undesired thing. On the other hand, since it is obvious that because of Lennie George cannot progress or even have a girlfriend, the strategy of ending this friendship connotes with George's freedom to work rendering to his own needs, which is one of the main principles of individualism, self-reliance, and even the core of capitalism.

Thus, the celebration of George and Lennie's friendship as it is evidently proved in the novel is a background against which Steinbeck insinuates the hypothesis of sustaining the American cultural entity that strongly believes in individualist way of achieving success. This friendship has been thorough and complete. It has shown clearly how independent one is when having to take care of a friend – a friend in need is a friend indeed – and how heavily one's success or failure depends on the other in friendship. Its harmful aspect on individual partners could not be vividly noticed if its ethics has not been respected.

III. Social Realist and Naturalist Methodologies: The Insinuation of American Capitalism in *of Mice and Men*

Individualism and self-reliance receive emphasis in the context of the American character not only because of the individual freedom to choose, but also for the fact that they delineate the country's economic system. Thus almost every character in *Of Mice and Men* has expressed, through actions or words, the need to act on their own choice for their future plans. This is understood either in the failure of one who has followed another character's advice or a group of workers disappointed because of their intent to demise capitalism. This section discusses the strategies through which Steinbeck insinuates his advocacy of and support to American capitalism.

To start with, the relocating effected by the ranch hands of the novel ordains one of the principles of capitalism – at least individual capitalism. The following conversation between George and Lennie implies that both are relocating for advantage and many other reasons.

> "… You remember where we're going now?" Lennie looked startled and then in embarrassment hid his face against his knees. "I forgot again"
>
> "Jesus Christ," George said resignedly. "Well – look, we're gonna work on a ranch like the one we come from up north."[5]

Though the main reason in this context may be that of security for this relocation, the general spirit of the displacement after the World's economic crisis of 1929 was that of life betterment and the pursuit of profits. "Driven by competition, individual capitalists seek competitive advantages within this spatial structure and therefore tend to be drawn or compelled to move to those locations where costs are lower or profit rates higher."[6] This is in the context of the American working class under the impact of the World economic crisis.

The main problem relating to the class division in the US is the clear disparities that even lead to the cruel treatment wield by the dominant class. However, as we could eventually imagine the differentiations in cultural and ethnic levels, the economic opportunities turn out to be the most observed measuring tape in the American society in the sense that requires from an individual the total submission to his/her employer. As John Carlos Rowe points out, "Far more likely to divide recent immigrants from US 'national culture,' as it is sometimes called, are social disparities and economic opportunities. Class hierarchies, in other words, are far more divisive of peoples in the United States […] than language or culture."[7] Thus, the working class has only to work hard in order to quit the menacing atmosphere

[3] Rowland Molony, "Simple minds: Rowland Molony considers some of the many literary instances of the identification of male simple-mindedness with virtue." *The English Review* 13.3 (2003): 18+. *Literature Resource Center*. Web. 17 Sept. 2015.

[4] John Steinbeck, *Of Mice and Men*, (New York: Penguin Books, 1994), p. 9.

[5] Ibid. pp. 7-8.

[6] David Harvey. *The New Imperialism*. (New York: Oxford University Press, 2003), p.94.

[7] John Carlos Rowe. "Postnationalism, Globalism, and the New American Studies" in*The Futures of American Studies*. edit.by Donald E. Pease and Robyn Wigman. (Durham and London: Duke University Press, 2002), p. 168.

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of the other class. That is where an individual is called upon the result of personal efforts for reckoning.

The example of some characters in the novel indicates the importance of individual decision concerning him/herself. Through the character of Curley's wife, Steinbeck insinuates the failure of an individual who does not take a decision on his or her own behalf. Curley's wife narrates her regretful personal story to Lennie:

> 'I lived right in Salinas,' she said. 'Come there when I was a kid. Well, a show come through, an' I met one of the actors. He says I could go with that show. But my ol' lady wouldn't let me. She says because I was on'y fifteen. But the guy says I coulda. If I'd went, I wouldn't be livin' like this, you bet.'
>
> Lennie stroked the pup back and forth. 'We gonna have a little place – an' rabbits,' he explained.
>
> She went on with her story quickly, before she could be interrupted. 'Nother time I met a guy, an' he was in pitchers. Went out to the Riverside Dance Palace with him. He says he was gonna put me in the movies. Says I was natural. Soon's he got back to Hollywood he was gonna write to me about it.' She looked closely at Lennie to see if she was impressing him. 'I never got that letter,' she said. 'I always thought my ol' lady stole it. Well, I wasn't gonna stay no place where I couldn't get nowhere or make something of myself, an' where they stoleyour letters. Iast her if she stole it, too, an' she says no. So I married Curley. Met him out to the Riverside Dance Palace that same night.'[8]

This implies how this character could not act according to her will or make a decision on the person to get married to. In some cases, one may be constrained to get married to unwilled person and turn out to be happy in the course of marital life. This is not the case of Curley's wife. She confides to Lennie that:

> 'Well I ain't told this to nobody before. Maybe I ought'n to. I don't *like* Curley. He ain't a nice fella.' And because she had confided in him, she moved closer to Lennie and sat beside him. 'Coulda been in the movies an' had nice clothes – all them nice clothes like they wear. An' I coulda sat in them big hotels, an' had pitchers took of me. When they had them previews I coulda went to them, an' spoke in the radio, an' it wouldn'ta cost me a cent because I was in the pitcher. An' all them nice clothes like they wear. Because this guy says I was a natural.'[9]

And this is because she did not marry the artist who could take her from place to place. Rather she married Curley under constraining circumstances. The consequences of this sad marriage are tangible. One character in the ranch informs George about the behavior of Curley's wife, while playing cards with Whit: "Whit laid down his cards impressively. 'Well, stick around an' keep your eyes open. You'll see plenty. She ain'tconcealin' nothing. I never seen nobody like her. She got the eye goin' all the time on everybody, I bet she even gives the stable buck the eye. I don't know what the hell she wants.'"[10] Giving eye to everybody is conducive to unfaithfulness and loss of marriage. In her case this drove her to confide herself to Lennie to the point of allowing the latter to touch her hair that led to her death in Lennie's hands.

Through this representation Steinbeck suggests an individual's failure when relying on others in every aspect of human life. He rather reinforces their isolation in order to make them rely on their own effort and be free. That is one of the most important principles of American capitalism. Jonathan P. Davis remarks that:

> Close attention to phrases used to define--free market, open competition, privately owned – soon reveals that the capitalist ideology in itself promotes a war among neighbors in its emphasis on the self before the community. Unlike communism or socialism, which both steer toward spreading wealth among the community, reducing the number of wealthy figureheads as compared to America, American capitalism reinforces isolation and deception as imperative in order to assure furthering the self toward capital gain. Because capitalism supports competition in an open market, people will naturally alienate themselves from others in competing for their personal goals.[11]

Thus the potentially successful an individual becomes in isolation constitutes Steinbeck's strategy to insinuate the economic system of the US. This economic system, as well as nationalism is the guiding force for short stories' writers. Joseph Urgo asserts that: "A good deal of the vitality and energy associated with the American short story originates at the intersection of two fundamental forces in the United States: capitalism and nationalism." [12] Therefore, if one's nationalist struggle involves capitalism, it means Steinbeck is reinforcing the American cultural value of individualism. But the particularity of the American capitalist structure is its total susceptibility to trod down the working class.

[8] John Steinbeck, *Of Mice and Men*, (New York: Penguin Books, 1994), p. 87.
[9] Ibid. pp. 87-88.
[10] Ibid. p.51.
[11] Jonathan P. Davis. "Caught in the Machine of American Capitalism."*Stephen King's America*. Bowling Green, Ohio: Bowling Green State University Popular Press, 1994. 77-89. Rpt. in *Contemporary Literary Criticism Select*. Detroit: Gale, 2008. *Literature Resource Center.*
[12] Joseph Urgo. "Capitalism, nationalism, and the American short story."*Studies in Short Fiction* 35.4 (1998): 339+. *Literature Resource Center*.

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Eric Paul, in "Clash of Capitalisms" compares the European capitalism and the Anglo-Saxon capitalism and finds that: "….the European model bears a striking resemblance to that of Japan because of the interventionist role of the state and regulations that impose restraints on competition and self-serving appetite. While the Rhenish model is not a workers' paradise, it is a more humane form of capitalism than its Anglo-Saxon counterpart."[13] It is in this perspective that the unkind treatment of workers can be notified in the American form of capitalism. So Steinbeck is not only insinuating the capitalist domination in the American economic system, but also describing how it functions.

The furious competition in this form of capitalism reveals the predatory aspect of human character. The employer's relation with an employee is not only set against the economic progress of the latter but also looks down upon the inalienable rights of the employee to life and freedom. This is exemplified in *Of Mice and Men*by the attitude of Curley, the son of the ranch's owner toward the ranch hands. For their progress, Joyce Moss and George Wilson cite Steinbeck: "Most new arrivals to ranches were broke. Their employers operated stores at which the laborers could purchase food and other necessities on credit. As Steinbeck notes, this virtually enslaved the laborer: 'Thus he must work a second day to pay for his first, and so on. He is continually in debt. He must work' (Steinbeck, *The Harvest Gypsies*, p. 35)."[14] On the other hand, workers lose their right to freedom once employed.Being the son of the owner drives Curley to think he deserves the right and the strength to shut up every mouth on the ranch. Considering the plight in the working place, Lennie required George: "Le's get outa here. It's mean here.'' We gotta stay,' George said shortly. 'Shut up now. The guys'llcomin' in."[15] This statement, made by George after he anticipates trouble, shows the impossible situation in which he and Lennie are caught. Though staying means trouble, leaving means starvation and hopelessness.

Among many other examples in the novel through which John Steinbeck insinuates the American capitalism we can mention the death of the dream that almost all the ranch hands have. Born from George and Lennie's friendship, the dream of owning a private piece of land has gained the workers who have conversed with either George or Lennie. Due to the economic and physical hardships that employees face, the good idea would be to be self-employed. Thus joining the program to have a land without a master was quick and easy. Since this was not going to be joint-venture, it alluded to the beginning of a socialist or communist system where equality among individuals is more accentuated and the number of wealthy people less.

The suggestion of capitalism in Steinbeck's fiction is at the same time advocacy for this system in the country. Because the period of World economic crisis of 1929 witnessed British loss of the World hegemony, the US had the chance to emerge as a hegemon with a particular economic system. According to Theodore H. Cohn,

> The disastrous experience of the interwar period resulted partly from a lack of economic leadership, and hegemonic stability theorists argue that a global hegemon increases the likelihood that there will be a more stable, open international economy. According to these theorists, British was the global hegemon in the nineteenth century. During the interwar period, however, Britain was no longer able, and the United States was not yet willing to assume the hegemonic duties of promoting freer trade and an open, stable economic system.[16]

The will of the United States to be a global hegemon, according to me, should be firstly concretized by the nation's cultural base that could clearly define the type of internal economic system to adopt. Though this concretization is being done by writers like Steinbeck, the vivid remark, especially from this novel, reveals the rejection of the other systems – communism and socialism – indirectly by the one being settled down. For the uncompromising competition among individuals to be capital owners would not allow the existence of a high number of wealthy and would always commend the predicament of poor citizens.

IV. Conclusion

The study of John Steinbeck's *Of Mice and Men*reveals, among many other assumptions, the fact that this novel constitutes an indirect address to the United States' economic system that was emerging during the period of the World economic crisis. Through the reactions of various characters involved in this fictitious work, it is obvious that the writer is insinuating, in his nationalist endeavor, the existence of capitalism as an economic system specific for the United States. And he excludes, through his methodology, the other potential economic systems, such as communism and socialism that are attempting to overtake the nation when British is losing the World economic control.

[13] Eric Paul. "Clash of Capitalisms" (ISSA Review, Volume 6 Nr.1 2007) p. 33.

[14] Joyce Moss and George Wilson "Overview: *Of Mice and Men*." *Literature and Its Times*: *Profiles of 300 Notable Literary Works and the Historical Events that Influenced Them*.. Vol. 3: Growth of Empires to the Great Depression (1890-1930s). Detroit: Gale, 1997. *Literature Resource Center*.

[15] *Of Mice and Men*, p.34.

[16] Theodore H. Cohn. *Global Political Economy: Theory and Practice.* 3rd edition.(New York: Pearson Longman, 2005), p.27.

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It is in this perspective that this article has been structured into two parts. The first part studies the writer's strategy in showing the importance of human relations by celebrating a good friendship. The celebration of this friendship is about the exhibition of George's faithfulness toward his friend Lennie in a country where individualism and self-reliance are cultural values. Therefore, our finding here turns around the failure of that celebrated friendship. This is to mean that Steinbeck has exhibited a relationship in which one partner relied on the other. Even though the success of this relationship based upon the good care that George gave to his mentally disabled friend, this does not contribute to his individual freedom and material success because he realized that without Lennie he could have succeeded in his life and have girlfriend. Thus, Steinbeck raises the negative consequences of a good friendship in order to put emphasis on the usefulness of individualism and self-reliance. That is why this part is entitled: The Ethics of Human Relationship and the Etiquette of the American Individualism.

The second part deals with the writer's methodologies that put capitalism in manifestation as the United States' economic system. This manifestation is through the representation of the characters in the novel. The behaviors of those characters show the functionality of the system and at the same time the exclusion of the other potential economic systems that would take hold of the American nation. To apprehend the expression of capitalism and the elimination of communism and socialism in the United States' economic system is to understand how Steinbeck utilizes his characters in his effort to establish a fundamental cultural value. Since the US was to become a global hegemon after World War I, there was a need of a nationalist struggle to concretize the nation's cultural base on which to set the country's economy. That is what pushed Steinbeck to display in his novel the existence and the functionality of capitalism in the United States of America, where "most want to do right by others". [17]

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Global Journal of human-social science: a
Arts & Humanities - Psychology
Volume 15 Issue 11 Version 1.0 Year 2015
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-460x & Print ISSN: 0975-587X

Digital Games Cause to Brain & Psychological Behaviours

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Abstract- This article discusses the ways in which digital games affect the behaviours of teenagers by promoting aggression. Also highlighted is what the field of neuroscience can tell us about the implications of using digital games, particularly with respect to their effects on teenagers' brains and, consequently, on their behaviours. In addition, this paper demonstrates the importance of conducting research on the ways in which the use of digital games affect teenagers' behaviour, values and mental health and stresses the need to find ways in which to ensure the safe use of digital games and other new entertainment media.

Keywords: digital games, violent games, aggressive behaviour, general aggregation model, psychological effects, teenage brain.

GJHSS-A Classification : FOR Code: 179999



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Digital Games Cause to Brain & Psychological Behaviours

L. K. Pulasthi Dhananjaya Gunawardhana

Abstract- This article discusses the ways in which digital games affect the behaviours of teenagers by promoting aggression. Also highlighted is what the field of neuroscience can tell us about the implications of using digital games, particularly with respect to their effects on teenagers' brains and, consequently, on their behaviours. In addition, this paper demonstrates the importance of conducting research on the ways in which the use of digital games affect teenagers' behaviour, values and mental health and stresses the need to find ways in which to ensure the safe use of digital games and other new entertainment media.

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I. Introduction

With the development of new technology, digital games are becoming more popular day by day. There are many different kinds of games available in the market, and their use affects individuals' lives in both good and bad ways. Many people believe that digital games are harmful to society, in general, and research suggests that overexposure to these games can lead to a number of negative effects in their users. However, although many studies have attempted to determine whether or not digital games actually result in negative impacts, there continues to be a great deal of misunderstanding and confusion about this topic. Drawing on past research papers, journal articles and research, this paper discusses the relationship between human behaviour and digital-game use. It is worthwhile to examine the content of digital games and to determine the ways in which they may enhance the lives of young individuals. However, the exposure of these young people to antisocial and violent gaming content could escalate the range of negative results to the extent that the young players may be placing their lives in danger. Even though it is impossible to know the precise causes for the younger generation's negative behaviours, there are a few possible explanations that point to the negative effects, including the promotion of aggressive behaviour, which many digital games inspire in young users. Our research found that these negative effects are linked directly to the content of digital games. The digital games which are available in the current market feature realistic backgrounds and humanoid characters who engage in battle. Unfortunately, digital games which have violent content (e.g. fighting and killing) now control the market. Approximately 80% of the digital games currently available in the market feature violent content. According to the research, the younger generation (aged 18 and above) play digital games more than 21 hours per week. A comparison of past research reveals that this usage is a trend that appears to be increasing rapidly: on average, young people are playing digital games three hours per day. Younger people throughout the world enjoy playing games that contain violent elements. Some of the more popular such games include *Call of Duty: Modern Warfare*, *Grand Theft Auto (GTA)*, and *Assassins of Creed*. *Call of Duty: Modern Warfare* made a reported profit of 550 million USD during the year 2014, while sales of *Grand Theft Auto IV* netted a 500 million USD profit. We completed a literature review to get an idea of how many younger individuals use these types of digital games and thereby expose themselves to representations of high levels of violence and antisocial behaviour.

Emes suggests that 'video game playing may be a useful means of coping with pent-up and aggressive energies' (1997). This article explores relevant literature in an attempt to determine how digital games affect young users. In order to accomplish this, we had to select a suitable basic theory to use as a framework with which to examine this research in depth. The younger generation, especially teenagers, gain life experience with their first view of society. This may explain the anxieties associated with the development of technological routines in our teens. Furthermore, this article describes research that was largely conducted with children and teenagers, as this is the age group most significant to the present study, particularly with respect to the effects of technology and digital games. The information gathered for this research reveals an exceptional case of conservation effects in the brain.

II. The Brain

Teenagers are going through serious mental and emotional changes as they mature; however, these young people are particularly vulnerable in a society that forces them to find solutions through the world that they encounter each day. Each new experience contributes to the development of their brain and will take them into adulthood step by step. One researcher found a connection between learning and neural capacity. The

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educational implication is that students who learn a great deal in a subject area grow more neural connections in response. Conversely, neglecting an area inhibits neural connections. Teenagers who frequently play digital games have more neural connections to the brain than those who do not. However, although it is important to place limits on the amount of time one deliberates about the features of a task, it is not as simple as we may think: the time we spend on the task contributes toward brain development.

A core characteristic of the brain, flexibility is the ability that helps to change the lifecycle of the brain in all individuals, be they infants, teenagers or adults. Flexibility helps to make new connections and to remove unwanted memories. Costandi (2010) states that flexibility helps teenagers grow in proportion to their life experience. At each stage of growth, the brain increases in knowledge, learns new skills and adapts to the environment (Costandi, 2010). Moreover, there are some who believe that brain cells have the ability to reproduce themselves, a specific implication that is apparent through the teenage stage. The teenage brain is undergoing an incomparable transformation and is remarkably flexible in adapting to any given situation.

The most vital factor at work within the teenage brain is that it is constantly producing emotions in response to different situations and growing over time and as a result of new knowledge and the feelings experienced. In contrast to the adult brain, which has already completed the development and learning process, the teenage brain is involved in activities related to complex thoughts. Adult brains are capable of making thoughtful decisions because they possess the ability to examine a situation logically, while the brain of a teenager is in the early stage of conversion and progressing from a mode of emotional reactions to one of clear, intellectual thinking.

This finding confirms the neuroscience which suggests that the teenage brain is in a transitional stage. These adjustments are significantly dependent upon the teenager's early experiences. Generally, technology plays a main role in this transition. As Anderson (2004) highlights, it is essential that both parents and teachers be alert to what teenagers are doing in order to prevent them from going in the wrong direction. The value of the technology they use depends on the purpose for which they are using it. It is important to note that education and other positive academic applications do not result in any negative outcomes (Anderson, 2004).

III. Digital Games

Today, games are used as an educational tool in most European countries. According to some research, about 80% of Europe's teachers and students are using digital games as instructional tools. In addition, the brain's neurotransmitter release higher amounts of dopamine while playing digital games: it provides the intellect for a participant to react happily, and it just as easily generates feelings of satisfaction and delight. This motivates teenagers to play digital games; it is this motivation that plays a significant role in the learning process (Clark & Ernst, 2010). One of the best digital gaming tools which is currently used for education is Nintendo. Fundamental mathematics involves more brain-exercise activities than playing digital games. It seems, however, that even though we use digital games as an educational tool, their learning outcomes are less satisfactory than traditional learning activities. Another study found that even if satisfaction and motivation are increased, educational achievement does not improve as the result of using digital games (Kinzie & Joseph, 2008).

Two research articles we reviewed reveal that there are specific consequence for the many teenagers who spend hours playing digital games. One study found that digital games are addictive in the same way that drugs and alcohol are addictive. Habitual game players are much more driven than those who play the games less frequently. Most of the digital games include addictive activities that may result in the release of a large amount of dopamine (Duven, Müller & Wölfling, 2011). Neuroscientists believe that the teenage brain tends to be exposed to addictive things that are harmful, which may lead to changes in the brain. The purpose for being spontaneous is to interrupt the inclination to over-engage the amygdala and to make the frontal lobes sleep, thereby balancing the brain and rendering teenagers capable of considering options and making serious decisions.

Though most digital games are not allowed in schools, teenagers frequently play them at home. When playing digital games that contain violent elements, testosterone levels, which are controlled by the brain- and possibly the reactions of the amygdale-escalate, which may cause the user to experience tension. Researchers have found that these kinds of digital games aggravate those who play them and increase violent behaviour. Therefore, we have to think twice when considering whether to play violent digital games.

IV. The Effects of Digital Games

An interest in digital games could be challenging for most young people, a problem which appears to be widespread. Halpin states that 'To-date, there has been no conclusive research to prove a causal link between playing digital games and social behaviour' (2004). If you agree with this statement, you must be misinterpreting how behavioural science has been accompanied. No research study can be exclusively decisive; researchers are always forming theories as a part of their research process. If

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researchers begin their study with the assumption that playing digital games is a strong factor that is associated with violent behaviour, they would conduct their research without wasting time by going round and round the problem. One study found a number of variables which could be related both to playing digital games and to violent behaviour, such as personality, anger, level of education and observing and controlling media.

According to Gentile, 'teenage extreme gamers prefer to play games approximately 35 hours per week, and those who do not belong to the extreme gamer category play approximately 14 hours per week, or about 2 hours per day' (2011). Gentile found that those who are labelled extreme gamers could experience higher levels of depression and social phobia. In addition to extreme gaming being a potential reason for increased aggression, it also could be the reason for poor marks on exams. This evidence about the causes of aggression described above could be a reason to support current guidelines. From time to time, digital games offer rewards that provide their users with real-world experiences. According to the research, it helps to release dopamine equivalent to the psycho-stimulant effect occurring in the brain.

At the moment, there is no agreement as to the diagnostic standards that tell us how to control extreme gamers and addiction to the use of digital games with violent content. This could be tolerated by the human brain, as there are many cases of inappropriate behaviour, although unusual, which could themselves be generating psychiatric disorders. Therefore, these types of problems are hard to control; consequently, the use of digital games could be seen as an addiction. It is anticipated that, with time, the significance of pathologies with respect to digital-game addiction will be clear, but there is currently a lack of agreement. Using digital games without time limits could be unhealthy. As researchers have found, there should be guidelines that limit the use of games, ideally a maximum of 2 hours per day for children and teenagers.

V. The Psychological Effects of Digital Games on the Teenage Brain

According to researchers, there are different clarifications regarding the effects of digital video games. These core effects are discussed in the paragraphs below.

a) Simulating

Simulation assists with processes such as quickly learning core behaviours by imitating human actions. Simulation, which is not cooperative, highlights antisocial behaviour and thereby has the potential to negatively influence society. We know that teenagers choose to emulate certain experiences they observe throughout society, and once they see any kind of violent behaviour, they tend to duplicate it. This tendency can result in significant harm to society. We also know that teens are likely to imitate familiar game characters: they are more likely to follow them just to draw attention from those around them in an attempt to be viewed as heroes, to receive rewards or to achieve a high social status. Through digital-game characters, teenagers are introduced to a thug lifestyle when the game focuses only on the 'bad side' of a society, in which people become heroes by killing or robbing. Reed reports that an '18-year-old youth in Thailand stabbed a taxi driver to death trying to find out if it was as easy in real life to rob a taxi as it was in the game' (2008). According to Leung (2005), an 18-year-old boy, after playing *Grand Theft Auto*, murdered three police officers and got arrested for carjacking. The boy said, 'Life is like a video game. Everybody's got to die sometime' (2005).

A couple of risk factors that are likely to promote the violent or forceful behaviour of teenagers have been confirmed as being associated with the use of digital games. It is difficult to recognize that these risk factors are dynamic when considering them in conjunction with aggressive behaviour. However, simulating violence in digital games appears to play some role. There are a few other factors which cause aggressive behaviours while imitating digital games. Most of the players are actively following the same scenarios that occur in the digital games.

b) Interactivity and Digital Games

Active participation in class activities as a method to help individuals to learn easily is an idea that needs to be explored. Performing a task without the assistance of others could help an individual to use his or her memory to retain knowledge relevant to the task (Gentile & Gentile, 2008). Digital games are extremely interactive with the players. With the latest technology, games which feature violent elements allowed players to use model weapons, such as guns, swords, and pistols. This could help to increase interactivity with the game and to bring the player closer to the game itself to give the feeling of a real-world situation. The technique of interactivity with the game and frequent practicing translate into effective learning. The main purpose of these digital games should be to function as powerful tools for educational purposes and not to build 'killing machines'. If violent elements are passed to individuals through digital games, significant negative outcomes will permeate society: hatred for each other, an increased number of robberies, perhaps even reasons to start a third world war. To stop antisocial behaviour, we have to refrain from welcoming digital games to society that promote aggressive and violent behaviour.

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c) Duplicating

It is well recognized that duplication of behaviours creates memories; this improves the skill and power of the digital-game player during every learned response. In addition, one must repeat the entire behavioural system, which is more effective than repeating each part of the whole system. Most non-violent digital games are tedious when compared with games that include fighting, shooting, and other violent behaviours. Players who like to play these types of games are habitually involved in duplicating their interactivity, and those who repeat the same behaviours unique to a particular game will achieve the capability to have similar thoughts and feelings while imitating the actions that occur in these games; these players present society with the same arrogant attitudes they observe in the game. Basically, the inappropriate behaviours learned through violent games are perfect for learning violent attitudes and acting out violent characters in everyday behaviour.

VI. The General Aggression Model (GAM)

The general aggression model (GAM) theoretically tells us how the violent contents of digital games are exposed to humans and that these aggressive effects can affect the human brain, both on a short-term and long-term basis. The GAM explains what will ensue psychologically in an event of aggression. Each human being brings his or her own willingness to diverge from their own beliefs and attitudes with respect to aggression, personality and other constant elements. Each and every situation which they face daily may trigger feelings of aggression. Once a teen encounters a potential cause for an aggressive act, numerous applicable perceptions are activated, such as memories, attitudes, and behaviour, emotions (e.g. fear or anger) and a stage of physiological provocation.

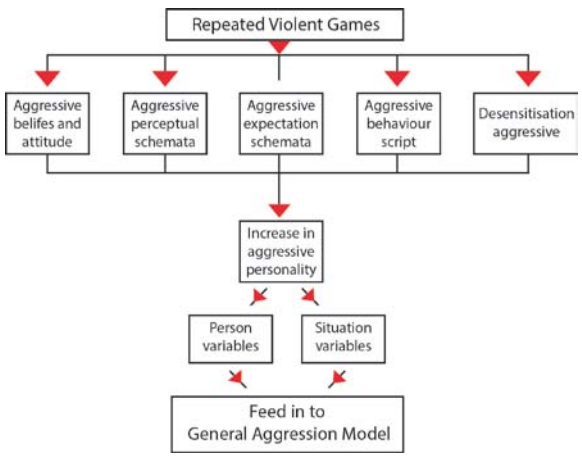


Figure 1 : General Aggression Model

The consequence of these motivational understandings and feelings, and also the level of provocation, could cause teenagers to have a sudden reaction. When teenagers have both the time and the ability to be more deliberate in their response, they will assess their choices and will make a final decision as to how they will act. If they are strongly provoked by the situation, however, they could be compelled to take a rash action. This would most likely be an ensuing reaction. The sudden response could be very aggressive and could prompt a social reaction, after which the incident is set into memory. As soon as the memory becomes ingrained, it can influence the teenager's response, depending on the situation. Researchers have found that, irrespective of personal characteristics and the extent to which they are inclined by digital games, the teenager's characteristics are significant and potentially responsible for how they react to certain situations. It also has been acknowledged that most of the digital games which have violent content serve as the causes of aggressive behaviour by stimulating aggressive feelings and could escalate the provocation level.

The arrogant behaviour, ideas and scripts for digital games which feature violent content lead to building perpetual understanding, attitudes, preferences in intellectual and encounter determination and inclinations that include aggressive behaviour (see Figure 1). This could escalate the fundamentals of aggressiveness in the teenager's character and promote the teen's aggression causes regarding a lieu where a high level of inclination to vilify. Concerning the model, we can conclude both short-term and long-term results.

VII. Conclusion

This article discusses the extent to which digital games with violent content are harmful. If adults can help teenagers to self-regulate with respect to the games they are playing, it would be very helpful to the teenager's psychological and educational well-being. It would be particularly helpful for teenagers to have opportunities to play digital games which offer a range of educational elements, and it would be better for them to avoid exposure to games which contain harmful elements. As many psychological researchers clearly highlight, playing games which feature aggressive elements could be a cause of violent behaviour. Most digital games have no limitations and drawbacks. But researchers suggest that an addiction to digital games could result in reduced attention to classroom activities in school, as well as serving as the reason for aggressive behaviours. These results are worrisome and require adults to pay more attention when the teenagers in their charge become involved with digital games. We think that it is time to move this discussion to the public forum so that society can take action to reduce teenagers' exposure to violent digital games. All parents have to decide how their teenage children will use

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computers, as well as what types of games they will play and how much time they will spend playing them. Parents should be able to monitor the usefulness of the digital games their teenagers play and should have at least a fair idea of their appropriateness.

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Global Journal of human-social science: a
Arts & Humanities - Psychology
Volume 15 Issue 11 Version 1.0 Year 2015
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-460x & Print ISSN: 0975-587X

'Bogir' Woodcarving of Pasuruan Furniture form and Style of Urban People in East Java Province of Indonesia

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Abstract- Woodcarving furniture with artistic value in the past is only commodity to fulfill the needs of elite society, the Javanese bourgeoisie who called as 'Priyayi' (Elite class society). They lived in traditional house with classical Java architecture style. But now, furniture has become people needs from various social level, including urban people who live in various residence with simple house type. Some of this interior furniture product appears with local decoration identity, and some other are modern. This condition is targeted by woodcarving crafter in Bogir - Pasuruan - East Java. Woodcarving furniture crafter society in Bogir Center are still produced by various style. The research uses qualitative approach with field report technique, and deeper analysis to understand the furniture product various design. Analysis technique is focused in form development and carving style which changes all over caused by mid-lower class society demand. They want to find their local identity, besides looking for prestige position as development in modern 'Priyayi' (Noble) class. So, in this Bogir Center furniture product, there found several forms and typical woodcarving style to fulfill urban society demand.

Keywords: furniture, artistic, carving.

GJHSS-A Classification : FOR Code: 190504



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‘Bogir’ Woodcarving of Pasuruan Furniture form and Style of Urban People in East Java Province of Indonesia

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I. Background

Woodcarving furniture is still exist until now, even their form and basic style still exist. Only some parts and size, also various decorative carving elements has experienced many adjustment. Since many people who interested to wood carving furniture are people who live in Urban 'priyayi' (noble) class region. People who now live around urban 'priyayi' (noble) of Surabaya and Malang city previously come by urbanization, from traditional society regions. Just like in village environment which influenced by feudalism society in the past, new 'priyayi' (noble) who work as government employee and teacher (Dwi Cahyono, 55 yo, interview in 23 August 2015).

Second generation of them are not living in village anymore with traditional living style or taking over status as village's 'priyayi' (noble). Many of young people who were born around 50's to 70's, chose to work as employees in big cities. They serve trading or service sector to serve lifestyle For example, as shopkeeper or salesperson in various food product. Those urban society are not living in downtown, they chose to live outside the city. They live in simple public residence. Their social community life are developed in various way, at least they have left traditional living (Rohidi, 200: 55) However, their social genetic couldn't be gone. So that their social intercommunication and lifestyle creation are not really like urban community. They still wanted to form status which is no difference with their parents living in village. Even social taste of new elite 'priyayi' (noble) is still a reference for their lifestyle (Soekiman. 2000: 55). That's why their furniture choices are oriented in classical taste. Material from wood, although it's not from the ancient teak. However, furniture with teak impression become strong obsession to fulfill their modern lifestyle (Dwi Cahyono (55 yo), interview, 22 April 2015).

This aesthetic taste of urban society lifestyle become the market creator for woodcarving center of Bogir - Pasuruan. This woodcarving region is already developed more than 30 years ago. Their experience in improving their profession also turned from new 'priyayi' (noble) demand in 1950's. Now this 'old taste', in fact is not decreasing (Hendro 51 yo, interview in 21 May 2015). Even woodcarving furniture demands are stable. This phenomena is interested to be reviewed as lifestly change form. Even there's a basic question, how is the form and decorative carving variance in Carving furniture crafting center of Bogir - Pasuruan to fulfill urban society lifestyle (Abraham. 1991: 22).

The question gives possibility of description that furniture consumer in woodcarving furniture center of Bogir - Pasuruan has developed. At least from two aspects observation, which are carving form and style produced by woodcarving crafter in Bogir Village of Pasuruan.

II. Research Method

Research method used is qualitative, the early phase is placing object location, which is woodcarving furniture craft center of Bogir Village - Pasuruan City. Next, set the research object, which is design variance of woodcarving furniture product by local center's crafters. And focused on furniture's form design, woodcarving decorative variance design problems. Research collection method uses: interview, observation, and documentation which generally are

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woodcarving furniture products (Bodgan & Taylor, 1993: 67). Data collection tools uses camera, stationery, and recorder to record voices (Soedarsono, R. M. 2001: 22). Data analysis result are descriptive and image visual data or design photos of woodcarving furniture design, woodcarving decorative variance design. *Research found that form characteristic and carving decorative variance* has their local characters: the form uniqueness and ornament variance of those furniture.

The key interviewees for this research are, Hendro (51 yo), Ribut (54 yo), and Fajar (48 yo), they are all crafters and carving entrepreneurs who have experience more than 25 years in their profession.

III. Data Exposure

The biggest woodcarving furniture crafters in Pasuruan City are spread in Gadingrejo sub-district which include 5 villages, they are Krapyak village, Randusari village, Sebani village, Gentong village and Bogir village. Among those five villages in Gadingrejo sub-district region, Bukir village is the largest woodcarving furniture craft. In Bogir, there are various business unit supports the efforts to make better woodcarving, for example sawmill which are managed whether by personal or cooperation, and also wood *show room* to sell wood meauble furniture.

Woodcarving appearance in Bogir, which included into traditional art, is able to develop among the nation developed And the improvement of people socieo-economy, along with education quality caused change in society which tend to direct into more dynamic, efficient, and practical without leaving the aesthetical value *(Sumardjan: 1964, 493).*

Slow but sure, this furniture industry in Bogir as improve significantly, it can be proven by the change of occupation which previously farmer, now they become crafters. Produced result such as table, chair, cupboard, bed, mirror, schetch and others (Ribut (54th, *wawancara 10 April 2015).*

Woodcarving is one of aesthetic activities with economical value, as result of aesthetical taste of functional things supported by skill, knowledge, and technical skill aimed to fulfill the life, those technical skill needs skill, adversity, patience, and continuous spirit. And those skills are achieved through learning or immitating It's also influenced the decorative variance design in woodcarving from their wood decoration design in Bogir. In its early development, wood decoration design in Bogir only emphasize wood texture with simple carving design, then after acculturation from wood carving crafter of Jepara who migrated to Pasuruan region, especially Bogir, create changes in wood carving decoration variance in such region (Fajar (48 th), interview 12 April 2015).

Along with consumer taste change which emphasize aesthetical value without reducing the practical usage of a furniture, wood carving decoration variance is started to be enjoyed. One example is shown in cupboard decoration variance pattern, in the past it is functioned as storage place, currently it has function as high-value interior aesthetic element. So, it can be said that consumer taste will decide the change in wood carving decoration variance pattern in Bogir (Abraham, 1991: 50). Strong will and skill to follow development and always search for new innovation in wood carving decoration variances, made all wood carving furniture craft in Bogir able to survive and develop in the middle of furniture competition whether in our country and abroad (Feldman, 1967: 113).

Wood carving furniture variances in Bogir is applied to furniture items such as chair, cupboard, mirror, bed, leather sofa, buffet, sofa, etc. The carving motive has various forms, there are some using geometrical motive, non-geometrical motive, whether from other region or abroad. Carving decoration variances applied by furniture influenced by motives from Jepara, since there are many wood crafters from Jepara who move into Pasuruan, especially in the Center. Next, it will influence style and technique of working wood carving furniture design in Bogir Center. From accessories craft furniture model from simple carving to the complex one, emphasize on wood texture, related with furniture carving character design (Gustami Sp, 2000: 68).

a) Wood carving furniture decoration form and variances of Bogir

Wood carving furniture form in Bogir village center of Pasuruan could be presented trhough its grouping. Several furnitures applied includes some functional items to complete home interior functions, they are:

i. *Classical dresser furniture product*, which is carving furniture design with floral decoration variances with classical style. Primary plant is a creeper which is distilled so that it forms a series of rope plants which tied each other to create carving with motive elements consist of flower decoration motive, leaf, base leaf, curly, etc. Carving with floral decoration variances consist of *suluran* motive, which is creeper formed a carving, decorating the upper side of dresser head, and supported by blossoming flower motive (*ceplokan)*, growing leaves (*trubusan)*, and buds of leaf (*angkup)* and leaf attached in that ropes. This carving is worked with protrude carving technique *(bulukan)* combination of invisible hole carving (*krawangan)* (Soepratno. 2011: 25).

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Image: Dresser furniture form (Ponimin photo, 2015)

ii. *Classical bed furniture product.* Shapes in bed furniture applies carving decoration variance in head part of bed rest, with classical decoration variance, with *suluran* (creeper), *trubusan* (tumbuhan sedang tumbuh), *bunga ceplok* (blossom flower), grapes, geometrical element, and *dadungan* (ropes shape) decoration motive element. Those decoration motive elements placed third curve pattern - half circle as carving decoration variance. The harmony looks more prominent by *ceplok* flower clustered among leaves.



Image: Classical bed furniture carving decoration variance (Ponimin photo, 2015)

iii. *Design for classical dining table furniture product.* This furniture product applies carving decoration variance in side part (*plisir)* and table legs. Decoration motive shape with minimalist classical style with palm leaves stylized decoration motive *dadungan* (ropes). Combination of decoration motive elements placed flat line pattern, functions as table buffer. Decoration motive element in form of torsion decoration variance. Meanwhile palm leaf stylized decorate side part (*plisir*) with symmetrical pattern and decorate table legs in upper part. Carving decoration follows the edge of table legs. Harmony will be more visible by composition which is not dominating each other.

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Minimalist classical dining table image. (Ponimin photo, 2015)

iv. *Living room table furniture product.* This living room table carving product is a wood carving furniture product with decorating variance with teak leaf main decoration motive with minimalist concept. This decoration variance consist of main decoration motive with teak leaf shape decorating the table surface and table's four side part. The decoration variance is also supported by circular wave line motive elements, points. Application of decoration variance motive in table surface or their side parts with low carving technique or flat carving, which is by gethakan chisel and also low carving (*krawingan)* or simple scratch carving (Toekio, 2009: 47).



Image: Minimalist teak leaf living room table. (Ponimin photo, 2015)

v. Primitive carving living room chair product design. Primitive carving model living room chair product design, is the latest/trend living room chair product with primitive carving style. With such model, craftsman would be able to create simpler carving design, whether shape or technique. Applied to the chair backseat frame and front below part. Carving motive made in various way, which took plant and human motives.



Image: Primitive chair



Image: Chair carving detail (Ponimin photo, 2015)

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vi. *Uliran style living room chair product design.* Living room chair furniture with plant (*flora*) decoration variance with decoration motive element consist of teak leaf decoration motive as backseat frame decoration and ropes grow to form ropes in chair's handhold). Teak leaf decoration motive decorates rectangular pattern in chair's handhold, while ropes decoration motive decorate free pattern formed curly or threaded shape in the end of ropes. In the end of curly shape, there's a growing leaf *(trubusan)* pattern.



Image: Ropes pattern carved chair (Ponimin photo, 2015).

vii. *Classical carving pattern cupboard product design.* Souvenire cupboard wood carving, including classical style decoration variance, which is plant (*flora*) with ropes leaves in growing leaf (trubusan) and *lung-lungan* motives. Leaf shape in the motive is curving and creeping to fulfill the cupboard crown field. In each stalk, there's threaded motive or growing plant (*trubusan*). Besides, this variation also decorates the front glass and field beside the crown.

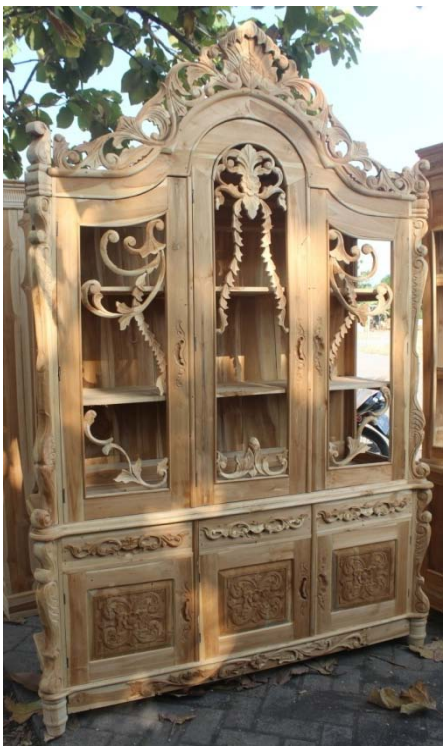


Image: Front sided souvenire cupboard (Ponimin photo, 2015)

IV. Discussion

Discussion collected below is according to data analyzed with function theory. So that observation and interview, also documents collected would be able to give description about furniture shape to be produced by craftsman in carving furniture craft center of Bogir village, and also give significant description between shape and carving they designed. Here is the explanation.

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According to this data exposure, basically in product design aspect, furniture shape produced in Bogir village of Pasuruan consist of some variants, they are: (a) decoration in cupboard shape, bed, or dresser. This furniture is made based on people needs which still has classical or traditional lifestyle. Which shapes fulfilled consumer taste with traditional taste. Actually the model is made to fulfill different society taste, which is differed based on society social class. Society social middle class basically didn't consider 'shape' aspect. They chose furniture with functional characters and suit the room condition. Meanwhile, middle and upper class society also have interest to simple shapes. However, they also consider about 'shape' aspect. *up to date* shape which represent strong taste, but still have strong ethnical character. (b) table shape (living room table, dining table and minimalist chair for living room). Their shapes are various considering taste and tendencious to image aspect. Meanwhile, dresser shape is autonomy of woman. Its shape is standard for their items function. However, there's tendency to fulfill feminism, beauty, elegance, and economical status. Since dresser is autonomous space for woman which give satisfaction when they tried to express themselves. That's why it has many curve, line repetition, and weaker lines. (c) Chair with minimalist primitive and classical carving, chair which basically want to represent their owner's character. Even there's a little bit much variants, which is chair to relax. This elegant status represent character as 'elite society style.' Still strong. Meanwhile, set chair for living room has tendency to be strong and gallant (Eskak. 2014: 67). That's why sometimes their consumer didn't consider in detail room circulation aspect they had. So 80% living room space is used by chair. It rarely become the main problem. However, taste which represent identity as fashionable person is really strong. Classical and primitive style become last. One of the interior decoration which isn't targeted much by people in urban environment. But attracted interest by people in higher economical status. Classical style become option which forced crafter to produce. The selling isn't really fast, but the price is still high. Even the creation couldn't be compared with other furniture models.

When we focused on furniture design shape from Bogir village of Pasuruan, which basically developed from classical and minimalist classical carving style, which by fulfilling modern lifestyle taste. Paying attention to the carving art development in Java. Classical carving style commonly already developed since Hindu, Buddha, and Islamic kingdoms. Even become economical product in the beginning of twentieth century (Koentjaraningrat, 1995: 67). At that time, appears new bourgeois society which identify themselves as noble ('priyayi'). Their furniture taste oriented in classical carving style. Consideration of the orientation is symbolical transform character. They want to get legitimation from various items, including furnitures. Furniture orientation with classical character. Since they can be grouped into higher class society. At least, their furniture taste is not only about shape and carving technique style. But also material selection, which is teak wood. Teak in Javanese originated from word: *Jatos*. Which means truthful. That's why teak wood selection as furniture material is considered by many people.

Classical carving pattern which currently able to be identified in Bogir carving center of Pasuruan has many variances, classical carving is not only oriented in philosophical meaning which give strength to ethnical identity aspect and social level. It looks like craft skill showcase to attract consumer. Since their consumer commonly are people with noble ('priyayi') orientation. It's revealed from Amin's explanation. Amin said that people who often order classical carving are commonly people from strong traditional center region such as Kediri, Blitar, Tulungagung, and part of Madiun (Fajar (48 year old): interview in 20th July 2015).

Besides, their furniture product are also developed into classical minimalist style. *Simplicity of wood carving shape in their furniture expressed throuhg straight and curved line, are form which represent original urban society expressions. They are transitional society who entered technology and mechanical taste world. So this geometrical carving is the beginning of transition from urban society into metropolist taste. Even wood material selection, isn't the main consideration anymore, clearly not material aspect, but line expression which bridging their social image into modern region which is furnitures from metal material.*

V. Conclusion

Analysis of shape and carving decoration variance in wood carving furniture product from Bogir village of Pasuruan shows relation between product, aesthetic taste, shape, style, and function. It can be recognized further, which is wood carving furniture shape with functional character, which can be differed by their consumer, which is urban society with middle economy status, formed an aesthetic taste from simple carving shape and style. Furniture size suits the social activity room condition, not as social expression, but provide historical relation of ethnicity taste. That's why the carving shape and style combination which has Java-Madura character grow stronger. This social aesthetic image also strengthen the middle economy society which trying to find stronger identity in place they settled, just as people in Urban region of Surabaya or Malang. Some of them also live in small cities region which started to grow into modern cities, such as cities in northern coast of Java island.

Shape, complexion, function, and social taste for furniture demanded by higher economy class is oriented to the past. They are searching for identity, so

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teak wood material become the main target. Even they wanted to show more natural product, which the finishing stage not manipulating the material too much. Their demanded carving style is classical and alternative traditional style.

Related with wood carving shape and style from crafters' product in furniture craft center in Bogir village, it has tendency of market oriented. Aesthetical taste former from carving shape and ornament is fulfilling urban people taste. They strengthen their status with furniture as society who have historical orientation to strengthen their ethnical culture, and in the other side, some people tend to strengthen their identity in entering modern society.

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Source List

Name	Sex	Age	Address	Profession
Dwi Cahyono	Male	55 years old	Perumahan sengkaling Indah. Jl. Kenongo 5 Mulyoagung, Dau Malang.	Lecturer in History Department, Faculty of Social Science. State University of Malang
Hendro	Male	51 years old	Bogir Furniture Woodcraft Center of Pasuruan, East Java	Woodcarving furniture crafter
Ribut	Male	54 years old	Bogir Furniture Woodcraft Center of Pasuruan, East Java	Woodcarving furniture crafter
Fajar	Male	48 years old	Bogir Furniture Woodcraft Center of Pasuruan, East Java	Woodcarving furniture crafter

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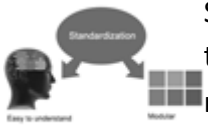


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- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
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- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

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What to keep away from

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The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



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Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

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- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

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Discussion:

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- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

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Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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ISSN 975587

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