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Developing a Prayer Circles (PC) and Prayer Direction Circles (PDC) Map

Ahmad S. Massasati
Developing a Prayer Circles (PC) and Prayer Direction Circles (PDC) Map

Ahmad S. Massasati, Ph.D.
Department of Geography
Faculty of Humanities and Social Sciences
United Arab Emirates University

Abstract

Geographic Information Systems GIS has proven to be an essential tool of Automated Cartography. The problems of finding the direction to the City of Makkah is extremely important to Muslims around the globe to perform the five time daily prayer. The challenge to solve such a problem is a classical example of map projection on flat surface where distortion may give the wrong impression on directions. A prayer direction circles and a prayer circle system have been introduced using GIS to solve the problem. Using spherical triangulation solution with the city of Makkah at the center of the prayer circles, a prayer map was designed to solve the problem. Knowing that map making is an art as well as a science, Islamic calligraphy and designs were added for better enhancement of the map.
ملخص

تصميم خريطة دوائر الصلاة ودوائر اتجاه الصلاة

ملخص

تعتبر تقنية إدارة المعلومات الجغرافية من أهم الأدوات المستخدمة في الصناعة الألية للخرائط. كما تعتبر مشكلة إيجاد إتجاه الصلاة من أهم المسائل التي تواجه المسلمين في العالم وذلك لارتباطها بالصلوات الخمس. حل هذه المسألة يعتبر من الأمثلة التقليدية لإسقاط الخرائط على سطوح مستوى مما يؤدي إلى تشويه شكل سطح الأرض ويعطي إنطباعاً خاطئاً عن الإتجاهات. نظام دوائر الصلاة ودوائر إتجاه الصلاة باستخدام نظم المعلومات الجغرافية GIS والمثلثات الكروية يقدم حلاً لهذه المسألة. وحيث أن صناعة الخرائط تعتبر علماً وفناً فقد استخدم فن الخط والزخرف الإسلامي في تجميل الخريطة.
Introduction

Map making was always recognized as a science and an art. The science of map making deals with location and attributes, and is expected to provide accurate information. Combined Geographic Information Systems (GIS) and Ground Positioning System (GPS) technologies, it is becoming possible to make maps with a higher accuracy and speed (Longley, 2001 and Burrough, 1998). GIS also provides the mapmakers with a powerful tool to introduce maps to a wider range of users in various scales and formats. The pictorial nature of cartographic language makes it the most understood form of communication for all of mankind. With recent development in computer and Internet technology, cartographic presentation is taking the lead for its capability to cross the barrier between cultures and languages. The global usage of such technology with a wide range of users has added a new challenge for map making.

The challenge is not all new. In all cultures, maps were produced according to own knowledge, belief, and preference of art. For that, maps are expected to be aesthetically pleasing “beautiful” (Robinson, 1995 and Woodward, 1987). Traditional map making used artistic forms of pictorial images to clarify map information and to add “beauty” to the map. For Muslims, calligraphy is considered the most important form of art (Faruqi, 1986). For that, Islamic mapmakers avoided figurative forms of decoration and used calligraphy and geometrical designs to enhance their maps (Woodward, 1987). Figures were used only when necessary (McIntosh, 2000).

While it is possible to measure accuracy, beauty will always remain a challenge. GIS technology is merely a powerful tool, yet no matter how powerful it is, making beautiful maps will still require the artistic touch of the mapmaker (Schenck and Minni, 2001). The Prayer Circles/Prayer Direction Circles (PC/PDC) map (Massasati, 2001) is an example of combined GIS technology with artistic values to produce a spherical solution on a flat “projected” surface. The map was published by the United Arab Emirates University (Massasati, 2001) and acknowledged by National Geographic (August, 2002), Gulf News (Fernandes, 2002), the American Journal of Islamic Social Sciences (Massasati, 2002), and ESRI
(Massasati, 2003). It was developed to serve a religious purpose and that is to find the prayer direction to Mecca. The scientific part of map making involves spherical triangular calculations to find the vertices of the PC/PDC system. Applied GIS technology was employed so that maps in various projections could be produced in both paper and digital format. The calligraphy part of the map was added as a decoration and designed in accordance with Islamic traditions.

LITERATURE REVIEW

Throughout the history of Cartography, maps reflected the scientific knowledge, ideas, belief, and the mapmaker's taste for art at the time of making. Additionally, maps made were an extremely powerful tool that influenced the human vision of the world. In fact, the power of the map is so hard to resist to the extent that it become a part of human reality (Cosgrove, 1988). Examples of such power can be found in many maps (Harvey, 1989, Robinson, 1995, and Harley, 1989) such as the “Terra” in “Oceania” (T in O) map where Earth is centered around Jerusalem.

The Muslim geographers such as Al-Idrisi and Al-Biruni shared a similar vision of the earth with much more scientific accuracy (Faruqi, 1986). Interesting enough, Muslims oriented the top of the map towards the south (Harley, 1992). In contrast, the recent discoveries of the map made by Piri Reis in 1513 A.D. (figure 1) shows the Americas as a part of Asia (McIntosh, 2000).

![Map of the world according to Piri Reis](image)

Figure 1. The world according to Piri Reis (Modified from McIntosh, 2000)
In modern times, the image of earth oriented toward the north on a flat surface is so strong to the extent that it is impossible to imagine earth otherwise. Even when the north arrow on a map is oriented to other than the top, map users assumes north to be at the top of the map. This disorientation is very critical when it come to finding directions especially for Muslims around the globe where prayers have to be performed five times a day facing the direction of the Sacred Mosque “Al-Qiblah” in Mecca. Muslim geographers have dealt with such a problem for centuries. Mechanical tools such as the Astrolabe were invented for such purpose (Ilyas, 1984, Faruqi, 1986, Harley, 1992, King, 1999, and Bilani, 2002). Calculations and maps that show directions from the known world were made as well. The controversy over the correct directions were recognized and dealt with. Projected maps with bended parallels that can show the correct direction toward Mecca can be traced to the beginning of the twentieth century (Tobler, 2002). Still doubts surface from time to time to challenge the geographers (King, 1999). The book compiled and organized by Nache and Kadi (1993) testifies that the direction of “Al-Qiblah” in the United States and Canada is to the southeast. The book is supported by powerful testimonies made by recognized organization around the world; however, this caused a strong disturbance in the Muslim communities especially in North America due to the fact that this assumption is based on the rhumb line solution (Robinson, 1998) which is wrong. Several articles were published in response to the problem (Ahmad, 1994, Almakky and Snyder, 1996, Abdali, 1997, Keller, 2002, and Shaukat, 2002).

The PC/PDC map is one of the attempts made to solve the problem (Massasati, 1994, 2002 and 2003). The PC/PDC vertices were calculated using traditional spherical trigonometry equations. Using the power of GIS automated cartography; the PC/PDC system (Figure 2) can be printed on any selected projection and be used as a tool of education.
Figure 2. The PC/PDC system printed on an Orthographic projection that shows earth from space. (Modified from Massasati, 2002)

It is very important to note that when the cartographers at National Geographic (August, 2002) decided to print the map, they requested the calculated vertices rather than the map itself. Using the vertices, they were able to reconstruct the map to print on a projection of their choice.

Another important point to be considered in the PC/PDC map, is the visual support rendered by Islamic Calligraphy, which is considered the highest form of art for Muslims (Faruqi, 1986, and Ulkar, 1987). Using ornamentations and verses from the Quran for decoration is found throughout Islamic literature as well as maps (Harley, 1992). The Quranic verse that prescribes the direction of the "Qibla" for prayer is used for decoration as well as to indicate the purpose of the map. Other calligraphic designs that glorify the Creator "Allah" were added as well.

APPLIED SPHERICAL TRIGONOMETRY

This branch of mathematics has been used historically for navigation for its accuracy. It deals with the relations of the sides and angles of spherical triangles, which are formed by the interception of two great circles of a sphere, with relevant functions of any angles. The vertices on the PC/PDC system were calculated using spherical trigonometry, assuming Earth as a spheroid. A great circle is defined as the intersection of a spherical
surface with a plane passing two points on the surface and the center of the earth. The solution for the shortest distance between any two points on a sphere is a great circle distance. The Prime Meridian is the 0 degree line of longitude, which runs through Greenwich, England.

The general spherical triangulation equations used in the calculations were (Ayres, 1954):

\[
\tan 0.5 (B + C) = \cos 0.5 (b - c) \sec 0.5 (b + c) \cot 0.5 A \tag{1}
\]

\[
\tan 0.5 (B - C) = \sin 0.5 (b - c) \csc 0.5 (b + c) \cot 0.5 A \tag{2}
\]

\[
\tan 0.5 a = \tan 0.5(b - c) \sin 0.5 (B + C) \csc 0.5 (B - C) \tag{3}
\]

Where:

Vertex C is at the North Pole, A at the point of origin (Mecca), and B is the calculated point at the destination. Angles a, b, and c are the angles from the center of earth to the vertices A, B, and C.

C = Longitude of B – Longitude of A, A = the azimuth from A to B, B = the azimuth from B to A, b = 90 – Latitude A, a = 90 – Latitude B, and c = the distance from A to B.

![Figure 1. The general layout of a spherical triangle.](image-url)
At the first step, Mecca/Medina great circle was used as a prime meridian for the PC/PDC system. The equations were modified to fit the Mecca, Medina, and the North Pole spherical triangle so that the direction and distance calculation could be made. The Latitude/Longitude of the cities of Mecca (at A) and Medina (at B) taken from ArcView map are approximately $21^\circ 27' \text{ N}, 39^\circ 45' \text{ E}$ and $24^\circ 26' \text{ N}, 39^\circ 42' \text{ E}$.

The modified equations of 1, 2, and 3 to solve for the true azimuth and distance between the two cities (angle A) are:

\[
\tan 0.5 (B + A) = \cos 0.5 (b - a) \sec 0.5 (b + a) \cot 0.5 C \tag{4}
\]
\[
\tan 0.5 (B - A) = \sin 0.5 (b - a) \csc 0.5 (b + a) \cot 0.5 C \tag{5}
\]
\[
\tan 0.5 c = \tan 0.5(b - a) \sin 0.5 (B + A) \csc 0.5 (B - A) \tag{6}
\]

Where:

\[b = 90 - 21.45 = 68.55^\circ,\]
\[a = 90 - 24.4333 = 65.5667^\circ\]
\[C = 39.75 - 39.7 = 0.05^\circ\]

and

\[
\tan 0.5 (B + A) = \cos 0.5 (68.55 - 65.5667) \sec 0.5 (68.55 + 65.5667) \cot 0.5 (0.05)
\]
\[
\tan 0.5 (B - A) = \sin 0.5 (68.55 - 65.5667) \csc 0.5 (68.55 + 65.5667) \cot 0.5 (0.05)
\]
\[
\tan A = 0.015265682
\]
\[A = 0.8745912^\circ\]

The calculated initial direction (azimuth) from Mecca to Medina is 0.8745912 Degrees west. Once the initial direction is set, the Latitude/longitude of a point on the PC/PDC system can be made using a 10 degrees interval starting from Mecca.
Where:
\[ b = 90^\circ - 21.45^\circ = 68.55^\circ \]
\[ c = 10^\circ \]
\[ A = 0.8745912^\circ \]

and
\[ \tan 0.5 (B + C) = \cos 0.5 (b - c) \sec 0.5 (b + c) \cot 0.5 A \]
\[ \tan 0.5 (B - C) = \sin 0.5 (b - c) \csc 0.5 (b + c) \cot 0.5 A \]
\[ \tan 0.5 a = \tan 0.5(b - c) \sin 0.5 (B + C) \csc 0.5 (B - C) \]

by solving the first equation:
\[ \tan 0.5 (B + C) = \cos 0.5 (68.55 - 10) \sec 0.5 (68.55 + 10) \cot 0.5 (0.8745912) \]
\[ \tan 0.5 (B + C) = 147.6351624 \]
\[ 0.5 (B + C) = 89.6119156^\circ \]

by solving the second equation
\[ \tan 0.5 (B - C) = \sin 0.5 (68.55 - 10) \csc 0.5 (68.55 + 10) \cot 0.5 (0.8745912) \]
\[ \tan 0.5 (B - C) = 101.2082882 \]
\[ 0.5 (B - C) = 89.43390096^\circ \]

using the two solutions to solve the third equation:
\[ \tan 0.5 a = \tan 0.5(68.55 - 10) \sin 89.6119156 \csc 89.43390096 \]
\[ \tan 0.5 a = 0.560614732 \]
\[ 0.5 a = 29.27563229^\circ \]
from the previous solutions:

\[ a = 58.55126458^\circ \]
\[ C = 89.6119156^\circ - 89.43390096^\circ = 0.17801464^\circ \]

The latitude of the vertex is \( (90 - a) = 90 - 58.55126458 = 31.44873542^\circ \)
The longitude of the vertex is \( (39.75 - 0.17801464) = 39.57198536^\circ \)

The process was repeated by adding 10 degrees to the angle “c” until a full PDC was formed. Then 10 degrees were added to the “A” angle and another PDC circle was calculated until 360 degrees to circle the globe. The 10 degrees vertices were used to form the PCs.

**AUTOMATED CARTOGRAPHY**

Using the power of GIS and automated cartography, the vertices were displayed on the world map shape file from ESRI using ArcView to make a visual check of the calculations. The vertices were then converted to ArcInfo files so that they could be connected to form the lines of the PDC/PC system. The files were converted again to ArcView to utilize its map projection capabilities. Other graphic programs were used to add the artistic components of the map. Figure 4 shows the PC/PDC map published by the United Arab Emirates University.
Figure 4. The PC/PDC map Published by the UAE University

The English translation on the map states that:

“When Muslims are gathered in Mecca, they pray in a circle around the Kabah, This is called “the prayer circle”. The circles start small at the Kabah and grow larger until they reach a great circle, then grow smaller until reaching a point at the other side of the earth. At that point, a person can perform prayer at any direction. In order to for a person to be praying correctly facing the Kabah, the prayer direction has to be perpendicular to the prayer circle. Persons standing behind each other will form another circle called “the prayer direction circle”.

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The antipode of Mecca is located at $21^\circ 27'\ S$ and $140^\circ 11'\ W$.

Figure 5 shows the PC/PDC system on an Equidistance Conic projection, where it is possible to see both Mecca and its antipode.

**Figure 5. The PC/PDC system printed on an Equidistance Conic projection.**

Figure 6 shows a Genomic projection of the Middle East. The central meridian of the map is $40^\circ$ East and the reference latitude is $22^\circ$ North. Note that all great circles appear as straight lines.
Figure 6. The PC/PDC system of central Middle East printed on a Genomic projection.

Figure 7 shows the prayer directions and prayer circles for North America. Note that the prayer direction starts from east at central America, but changes to North in Alaska and becomes North-West in Hawaii. The calculated azimuth from Honolulu, Hawaii (21° 18' N 157° 51' W) is -23.00078385 degrees and that can be seen on the map.
The most important application of such a map is a Muslim can find the direction to Makkah by simply consulting the map.

THE ISLAMIC CALLIGRAPHY

In keeping up with Islamic traditions, the map is topped by the phrase “In the name of Allah the most Merciful, the most Beneficent”. The phrase is digitized in Thuluth Jaly style. Followed by the verse 2:150 from the Quran that prescribes the Qibla direction for prayer (Figure 8).

Figure 8. The top calligraphy plates designed in Thuluth Jaly and Kufi Jaly.
The verse is designed in Kufi Jaly style, and can be translated as “And wherever you are, turn your faces in its (the Sacred Mosque) direction”. The calligraphy plates surrounding earth (Figure 9) is inspired by thirteen-century plates found in Turkey (Schimmel, 1970). The four plates read as “Supremacy belong to Allah, Thanks to Allah, Sovereignty belong to Allah, and Might belongs to Allah”. Each of the plates can be rotated 180 degrees to fit on another one forming a plate. The style of the plates is Kufi Jaly.

1. al-'azamatu Lil-lah
2. al-'shukru Lil-lah
3. al-'mulki Lil-lah
4. al-'izzatu Lil-lah

Figure 9. The designs of the surrounding calligraphy units in Kufi Jaly style with transliterations.

ACCURACY PROBLEM

Users of the PC/PDC system need to realize that relative accuracy will always be a problem. The difference in calculation between a “spheroid” earths versus “ellipsoid” was discussed (Almakky and Snyder, 1996), and the difference is small and can be ignored. A similar issue can be raised when it comes to the initial values of the cities of Mecca and Medina.
location. Different authoritative maps and references give different values for the location of the two cities. For example, the Latitude/Longitude given by the following references for Mecca and Medina are:


The values used in the paper: 21° 27' N, 39° 45' E and 24° 26' N, 39° 42' E

The difference in calculation could be ignored but if accuracy is needed, a more precise location of the Sacred Mosque in Mecca will be required.

CONCLUSION

The power of the map on shaping the human vision of the world is well recognized. Projected maps on a flat surface can be deceiving. Education is the key to correct any misleading information that could be conveyed by the map. Map projection and artistic presentation capabilities can play a crucial role in presenting information in various forms. GIS is an excellent tool that can provide a solution for that problem as can be seen in the application of the PC/PDC map, which is an important step toward solving the long debated issue of the direction to Makkah.
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Social and Personal Conceptions of Academic Self: Relationships of Self-concept with Achievement and Subject Matter Value

Maher M. Abu-Hilal

And

Khalil N. Darweesh
Social and Personal Conceptions of Academic Self: Relationships of Self-Concept with Achievement and Subject Matter Value

Maher M. Abu-Hilal, Ph.D.
Department of Psychology
United Arab Emirates University

Khalil N. Darweesh, Ph.D.
Department of Sociology
University of Jordan

Abstract

This study tested the pattern of relationships among various cognitive (e.g., achievement) and affective (e.g., subject matter value) variables. Self-concept has both a cognitive (evaluative) and an affective component; however, researchers have rarely identified and used the two as separate components. Most researchers have combined the two components in one construct (Bong and Skaalvik, 2003). This study tested models and theories with conflating components and with separating components. This study revealed that theories and models with SC components separated were superior to theories and models conflating SC components. This was true at least for Emirati samples from elementary and preparatory school s. Since the study has been among very few with such consideration to SC, further studies are encouraged.
ملخص

حاولت الدراسة الحالية اختبار نمط العلاقات بين مجموعة من المتغيرات المعرفية (كالتحصيل الدراسي) والعاطفية (كأهمية أو قيمة المادة الدراسية).

من المتفق عليه بين كثير من الباحثين أن مفهوم الذات ينطوي على مكونين: أحدهما معرفي (تقويمي) والأخر وجداني (وصفي). بالرغم من ذلك فإن الباحثين نادراً ما كانوا يميزون في دراساتهم بين هذين المكونين رغم إقرارهم أن المكونين يتميزان عن بعضهما من الناحية النظرية على الأقل.

وعليه فإن الدراسة الحالية هدفت إلى اختبار نماذج ونظريات في مفهوم الذات وذلك في حالة دمج المكونين وفي حالة فصلهما وصولاً إلى أي الحالتين أفضل تمثيلاً لحقيقة مفهوم الذات.

وقد أثبتت الدراسة أفضلية النماذج والنظريات في حالة اعتبار المكونين منفصلين.

وربما كانت هذه النتيجة صحيحة على الأقل فيما يتعلق بعينات الدراسة المستخدمة وهي عينات من طلبة المدارس الابتدائية والإعدادية في دولة الإمارات العربية المتحدة.

ولكون هذه الدراسة من الدراسات النادرة التي تعاملت مع مكوني مفهوم الذات على أنهما منفصلين فإنه لا بد من إجراء دراسات أخرى وعلى عينات مختلفة للتحقق من نتائج هذه الدراسة.
Social and cultural influences on achievement are realized primarily through student’s motivation and behavior. Self-concept (SC) lies in the heart of motivation and represents an essential component of motivation (Chen & Stevenson with Hayward and Burgess, 1995). Both psychologists and sociologists agree that SC develops and grows out of cultural values and beliefs as well as interaction with family members, peers and teachers (Chen et al., 1995; Shavelson & Marsh, 1986). Although psychologists believe that SC is the person’s perception of him/her self (e.g. Shavelson & Marsh, 1986), social psychologists contend that when objective standards of comparison are not available, students evaluate themselves using significant others as the bases of comparison (Festinger, 1954). In an echo of the social comparison theory of Festinger, Shavelson and Marsh suggested that significant others such as parents, peers and teachers influence self-perceptions. Rosenberg (1979) cited several empirical evidences that support individual’s inclination to view themselves as they are seen by others. Also, Harter (1990) indicated that students tend to shape their academic SC in part on the basis of their perceptions of how parents, teachers and peers appraise their academic ability.

Sociologists, on the other hand, place more emphasis on the social aspect of the person and consequently distinguish between two kinds of self or identity: social self and private self. The social self is known to have contradicting evaluations that may force the individual to escape to and enslave in his/her private self. No matter how secure the private self is, finally this self should adapt with negative evaluations coming out of the environment (Frey, 1983). According to Bong and Skaalvik (2003) SC, particularly in academic domain “is determined by the result of social comparison and such comparison with similar others is believed to result in strong emotional consequences (p. 12).

Consistent with the sociological framework of self or identity and in line with Shavelson, Habner, and Stanton’s theory of SC (1976), Irving (1996) proposed that SC has evaluative and affective dimensions. The evaluative dimension corresponds to social influences where one builds part of his/her self by comparing his/her qualities with those of others within the reference group. This kind of process constitutes the external frame of reference (social comparison). The affective dimension, on the other hand, corresponds to personal or psychological influences where one builds another part of his/her self by comparing his/her qualities in
one domain with his/her qualities in other domains. And this constitutes the internal frame of reference. Feedback from teachers and from test results plays a significant role in forming and developing SC.

Several researchers have sometimes stressed one aspect of SC over the other. Harter (1990), for example, acknowledged both cognitive and affective aspects of SC, but she stressed perceived competence as most central to self-evaluation. Eccles and Wigfield (1995) distinguished between perceived competence and perceived task value (affective). Chapman and Tunmer (1995) distinguished between perceived competence and attitudes toward a percept (affective). In all of these theories, the dichotomy of cognitive/evaluative and affective is apparent. Bong and Skaalvik (2003) concluded that distinction between cognitive and affective components of SC is relatively a recent issue in SC research. They also indicated that despite evidence of separability between cognitive (evaluative) and affective, most academic SC measures combine the two components. Combining the two aspects may lead to losing some information as to how these aspects are inter-related and how they are related to other constructs or variables (see Irwing, 1996).

Two other perspectives have been proposed to explain establishment and development of SC. Although they are not the focus of the present investigation, self-enhancement and self-verification are worth discussion here. According to Hay, Ashman, Kraayenoord and Stewart (1999), these two perspectives are influential in development of SC. Consistent with the sociological perspective, self-enhancement theorists argue that individuals tend to augment the positivity of their self-concepts and diminish negativity. Individuals usually pursue activities and accept feedback that enhances SC, while they avoid situations and try to ignore information that reduces SC. Also, self-enhancement theorists posit that SC is a cause of achievement and other outcome variables such as persistence and dropout. Self-verification or skill development, on the other hand, “refers to the tendency of individuals to prefer and to seek information and evaluations that confirm self-views that are firmly held” (Hay et al., 1999, p. 225). Hence, the main concern is that individuals tend to authenticate rather than sustain the existing SC. Theorists of this perspective believe that achievement is a cause of SC. Both perspectives have been used to test SC theories and hypotheses.

Consistent with the skill development approach and as part of an effort to disentangle the relationship between performance and SC, Marsh, Walker
and Debus (1991) argued that students use their performances in various domains and the performance of their classmates to establish frames of reference for self-evaluation. Marsh and Shavelson (1985) stated that "students based their academic self-concepts in particular subjects on their ability in that subject compares with other students (external comparison) and how their ability in that particular subject compares with their abilities in other subjects (internal comparison). The internal/external (I/E) frame of reference model suggests that achievement in specific domain (e.g., math, language, sports, science, music) would positively affect SC in that domain (Abu-Hilal, 2002; Abu-Hilal & Bahri, 2000; Marsh, 1988). Marsh (1988) argued that this pattern of relation is due to social (external) comparison process. The internal comparison process, however, has a counteractive effect. That is, one may perceive his/her self as being good in one domain (e.g., math or science) but not as good in another domain (s) (e.g., language, sports, etc.).

Therefore, the effect of achievement in one domain on SC in other domain(s) may be negative or null due to the interaction between the internal and external comparison processes. In other words, the relationship between achievement in a specific domain and SC in a different domain is expected to be negatively weak (Marsh, 1988). The I/E frame of reference model has been tested and found valid in several western studies (see Marsh, 1990 for more). In the United Arab Emirates, the model has been tested and most of its propositions have been validated (see Abu-Hilal, 2002; Abu-Hilal & Bahri, 2000).

The I/E frame of reference model is an outgrowth of the social comparison, or cognitive evaluation, theory (Fistenger, 1954) and self-worth theory (Covington, 1992). The cognitive evaluation theory emphasized the use of social comparison as an evaluation of one’s performance to a frame-of-reference group, where a downward comparison group helps increasing and an upward comparison group helps reducing the person’s SC. According to self-worth theory (Covington, 1992), an individual learns that one is valued because of his/her accomplishments. Accomplishments are usually judged by comparing one’s accomplishments with those of others and in the context of the perceptions of one’s abilities in one domain and in other domains as well. Nicholls (1984) indicated that children’s perceptions of their academic abilities decline as they proceed through school. Students’ self-perceptions of ability and competence tend to decrease as social
comparisons are made and as feedback from others (teachers, peers and parents) is internalized. Consequently, the children's sense of worth begins to depend on whether they do better or worse than other students.

It should be noted, however, that in previous studies, each SC facet (e.g., verbal, math parents, etc.) was treated as a unitary construct disregarding the dichotomy of evaluative and affective. This conflation may have led to obscuring or underestimating the magnitude of relationships between SC and achievement and other variables.

To establish its construct validity, SC has been related to other criterion measures (e.g., achievement, adjustment, anxiety, etc.) where a logical pattern of relationships is predicted. Academic performance as reflected by school marks or standardized tests has been widely used to test various hypotheses related to SC theory. Also here, no distinction between evaluative and affective dimensions of SC was made. To achieve more valid tests of such hypotheses, constructs ought to be clearly and validly conceptualized and operationalized. One such conceptualization is to conceive of SC as having two dimensions: evaluative and affective. Only then one can make sound inferences about self-concept's construct validity and relations with other constructs such as achievement. This kind of conceptualization was missing in most of previous research (Irwing, 1996). The present investigation purports to address this issue and test hypotheses about self-concept's relations with other constructs such as achievement (evaluative) and subject value or attitude to subject matter (affective).

Specifically, this study tested several hypotheses; some were related to the structure of SC (construct validity) wherein several measurement models were tested. Based on the literature review, namely the work of Irwing (1996), we hypothesized that separating SC into evaluative an affective dimensions would produce a better academic SC structure than conflating the two dimensions. The other hypotheses were concerned with the relationships of verbal and math SCs –as composite constructs- with other evaluative variables (e.g., Arabic and math achievements) and affective constructs (e.g., Arabic value and math value) to further our understanding of SC criterion validity. Correlations and path analyses were employed to test the hypotheses of relationships. We hypothesize that the relationships of SC constructs would be clearer when SC is separated into evaluative and affective dimensions than when they are conflated. Also, we hypothesize that evaluative SC would be more
strongly related to and could better predict evaluative constructs (e.g., achievement) than affective constructs (subject matter value or importance). Similarly, it is assumed that affective SC would be more strongly related to and could better predict affective constructs (subject value or importance) than evaluative constructs (achievement).

METHOD

Sample
The sample consisted of 343 students (113 boys and 230 girls) from sixth grade (182 students, 72 boys, 110 girls) and ninth grade (161 students, 41 boys, 120 girls from Al-Ain school district in the United Arab Emirates.

Instruments
For the purpose of this study two instrument were used:

1) Self-Description Questionnaire (SDQ-I). Arabic-translated items were adapted from SDQ-I and used to collect data about students’ self-concepts in two subject areas: Arabic and mathematics. Fifteen items (7 verbal and 8 mathematics, see Table 1 for items) were used. SDQ-I is a self-reported instrument in which respondents are asked to indicate if each of the statements is false, mostly false, sometimes false/sometimes true, mostly true or true. Each response corresponds to the following scores, respectively: 1, 2, 3, 4, and 5. Hence, the higher the score, the more positive the SC. Half of the eight items reflects the affective dimension and the other half reflects the evaluative dimension.

Alpha coefficients were computed for each subscale and for each dimension -affective and evaluative. The coefficients were .87 and .89 for verbal and mathematics subscales, respectively. As per dimension, alphas were .62, .87, .83, and .83 for evaluative verbal, affective verbal, evaluative math and affective math, respectively.

2) Subject Matter Value (Arabic and math). Three items purported to measure subject matter (Arabic and mathematics) importance and value for students as currently ("what I learn in math helps me understand things more clearly"), ("what I learn in Arabic helps me in my daily life outside the school") and in the future ("what I learn in math is important for me in the future"). Alpha coefficients were computed for each of the two sets of items and found to be .76 for each.
School Achievement. For the purpose of the present study, Arabic grades (which will be used interchangeably with verbal achievement) and mathematics grades were obtained from the official school records. Those grades are aggregate scores of assignments, quizzes, and exams during the preceding year. The maximum score is 100 the lowest is zero.

RESULTS

Exploratory Factor Analysis (EFA). This analysis was conducted with two factors (evaluative and affective) extracted for each of the verbal and mathematics sub-scales. Table 1 shows the factor loadings that are all substantial. All items loaded on the factors they were supposed to measure except for item 15 which loaded on the dimension it was not intended to measure. Item 4 loaded moderately on the affective dimension (.37) and on the evaluative dimension that it was measuring (.55). These unexpected loadings may be due to the limitations of EFA. One such limitation is that although one can extract a specified number of factors, one can’t ensure that the factor structure is the one hypothesized by the researcher. With confirmatory factor analysis (CFA), however, it is possible to test how well a hypothesized model can fit data wherein items can be specified to load on only the factor (s) they are supposed to measure. Nevertheless, the EFA produced loadings that reflected a clear simple structure suggesting that SC is a multidimensional rather than a uni-dimensional.

Confirmatory Factor Analysis (CFA). To confirm dimensionality of SC, two waves of CFA were conducted with EQS package (Bentler, 1995). In the first wave, verbal SC items were analyzed with two models: one model specified one factor underlying the seven verbal items (Table 2 model A) and the other model specified two verbal factors (evaluative and affective- model B). Similarly, math SC items were analyzed with two models: one specified one factor underlying the eight math items (Model C) and the other specified two math factors (evaluative and affective- model D).

The verbal domain. Model A fit the data only marginally. The fit indices indicated an acceptable fir with a χ² (N=343, df = 15) = 130.53 (CFI = .86, GFI = .92, RMSEA = .15). However, when evaluative and affective factors were specified (Model B) the fit was a little better with χ² (N=343, df = 15) 118.33 (CFI = .89, GFI = .91, RMSEA = .15). The difference in χ² between model B and model A was 12.2 and significant (p. < .01)
indicating that model B had a better fit than model A. This result confirms findings reported by Irwing (1996) and supports that verbal SC has both an evaluative and an affective dimension. The item loadings on the factors they were designed to measure were all substantial ranging from .62 to .84 (Table 3).

The math domain. Models C and D in Table 2 are concerned with math items. As can be seen in Table 2, the one factor model produced a \( \chi^2 \) (N=343, df = 21) = 123.30. The other fit indices were: CFI = .91, GFI = .90, and RMSEA = .12. The indices indicate an acceptable fit. The fit of model D, however, was superior to model C. The \( \chi^2 \) statistic was 56.78 with 21 degrees of freedom (the less \( \chi^2 \) the better the fit) and the other fit statistics were: CFI = .97. GFI = .96, and RMSEA = .07 indicating a good model fit to data. As can be noticed, the fit of the math models were much better than the fit of the verbal models. This result is not surprising. Abu-Hilal (2001, 2002) and Abu-Hilal and Bahri (2000) found that math SC had higher reliability, clearer structure and more straightforward relations with other constructs (e.g., achievement, locus of control, anxiety) than verbal SC. In summary, the distinction between the evaluative and affective dimension of SC is supported by both exploratory and confirmatory factor analyses.

Table 1

<table>
<thead>
<tr>
<th>Items</th>
<th>No</th>
<th>Verbal</th>
<th>Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>I get good grades in Arabic</td>
<td>1</td>
<td>.93</td>
<td>+</td>
</tr>
<tr>
<td>I am good at Arabic</td>
<td>5</td>
<td>.60</td>
<td>.27</td>
</tr>
<tr>
<td>Arabic is easy for me</td>
<td>15</td>
<td>.65</td>
<td></td>
</tr>
<tr>
<td>I like Arabic</td>
<td>3</td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td>I am interested in Arabic</td>
<td>8</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td>I enjoy learning Arabic</td>
<td>12</td>
<td>.90</td>
<td></td>
</tr>
<tr>
<td>I look forward to Arabic</td>
<td>17</td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>Math is easy for me</td>
<td>4</td>
<td></td>
<td>.55</td>
</tr>
<tr>
<td>I get good grades in math</td>
<td>10</td>
<td></td>
<td>.87</td>
</tr>
<tr>
<td>I learn math fast</td>
<td>14</td>
<td></td>
<td>.64</td>
</tr>
<tr>
<td>I am good at math</td>
<td>19</td>
<td></td>
<td>.89</td>
</tr>
<tr>
<td>I look forward to math</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am interested in math</td>
<td>11</td>
<td></td>
<td>.72</td>
</tr>
<tr>
<td>I like math</td>
<td>16</td>
<td></td>
<td>.93</td>
</tr>
<tr>
<td>I enjoy my time at math</td>
<td>21</td>
<td></td>
<td>.82</td>
</tr>
</tbody>
</table>

Note. No refers to item number on instrument; EV: Evaluative; AFF: Affective. + Values less than .25 are omitted.
Verbal and math domains together. In the previous analyses the verbal and math models were estimated separately. Here, all items (15) were put together and two models were estimated: a two-factor model with verbal items specified to load on the verbal factor only and math items specified to load on the math factor only (model E). No distinction was assumed between evaluative and affective SC. As can be seen in Table 2, the $\chi^2$ statistic was 440.96 with 91 degrees of freedom (CFI = .83, GFI = .83, RMSEA = .11) indicating a poor fit. However, when the distinction was assumed between evaluative and affective self-concepts and four factors were specified (model F), the fit improved markedly. The data for model F (Table 2) shows that the $\chi^2$ statistic was 285.47 with 88 degrees of freedom and the other fit indices were: CFI=.91, GFI= .90, RMSEA = .08. The difference in $\chi^2$ statistic between model F and E was 155.49 (df = 3) and significant at p. < .01 indicating that model F was superior to model E. Figure 1 depicts factor loadings and factor correlation of model F.

### Table 2

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$\chi^2_{\text{diff}}$</th>
<th>CFI</th>
<th>GFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 1-factor (verbal)</td>
<td>130.53</td>
<td>15</td>
<td>.86</td>
<td>.92</td>
<td>.15</td>
<td></td>
</tr>
<tr>
<td>B 2-factor (verbal)</td>
<td>118.33</td>
<td>15</td>
<td>12.20</td>
<td>.89</td>
<td>.91</td>
<td>.15</td>
</tr>
<tr>
<td>C 1-factor (math)</td>
<td>123.30</td>
<td>21</td>
<td>.91</td>
<td>.90</td>
<td>.12</td>
<td></td>
</tr>
<tr>
<td>D 2-factor (math)</td>
<td>56.78</td>
<td>21</td>
<td>66.52</td>
<td>.97</td>
<td>.96</td>
<td>.07</td>
</tr>
<tr>
<td>E 2-factor (verbal &amp; math)</td>
<td>440.96</td>
<td>91</td>
<td>.83</td>
<td>.83</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td>F 4-factor (verbal &amp; math)</td>
<td>285.47</td>
<td>88</td>
<td>155.49</td>
<td>.91</td>
<td>.90</td>
<td>.08</td>
</tr>
</tbody>
</table>

**Note.** CFI: comparative fit index, GFI: LISREL goodness of fit index, RMSEA: root mean square error of approximation.
### Table 3

**Items and Factor loadings on Evaluative and Affective Dimensions of SC from Confirmatory Factor Analysis**

<table>
<thead>
<tr>
<th>Items</th>
<th>No.</th>
<th>Verbal</th>
<th></th>
<th>Math</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>EVA</td>
<td>AFF</td>
<td>EVA</td>
<td>AFF</td>
</tr>
<tr>
<td>I get good grades in Arabic</td>
<td>1</td>
<td>.75</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>I am good at Arabic</td>
<td>5</td>
<td>.62</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Arabic is easy for me</td>
<td>15</td>
<td>.80</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>I like Arabic</td>
<td>3</td>
<td>0.0</td>
<td>.84</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>I am interested in Arabic</td>
<td>8</td>
<td>0.0</td>
<td>.81</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>I enjoy learning Arabic</td>
<td>12</td>
<td>0.0</td>
<td>.82</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>I look forward to Arabic</td>
<td>17</td>
<td>0.0</td>
<td>.76</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Math is easy for me</td>
<td>4</td>
<td>0.0</td>
<td>0.0</td>
<td>.78</td>
<td>0.0</td>
</tr>
<tr>
<td>I get good grades in math</td>
<td>10</td>
<td>0.0</td>
<td>0.0</td>
<td>.81</td>
<td>0.0</td>
</tr>
<tr>
<td>I learn math fast</td>
<td>14</td>
<td>0.0</td>
<td>0.0</td>
<td>.68</td>
<td>0.0</td>
</tr>
<tr>
<td>I am good at math</td>
<td>19</td>
<td>0.0</td>
<td>0.0</td>
<td>.62</td>
<td>0.0</td>
</tr>
<tr>
<td>I look forward to math</td>
<td>7</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>.74</td>
</tr>
<tr>
<td>I am interested in math</td>
<td>11</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>.74</td>
</tr>
<tr>
<td>I like math</td>
<td>16</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>.85</td>
</tr>
<tr>
<td>I enjoy my time at math</td>
<td>21</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>.74</td>
</tr>
</tbody>
</table>

*Note.* No. refers to item number on instrument; EVA: Evaluative; AFF: Affective. Only items designed to measure a factor were free to load on that factor, else a zero loading was assumed.

**Correlational Analysis.** Table 4 shows the correlation coefficients of the evaluative and affective dimensions of SC with various variables measured in the present study. The results of the correlational analysis are presented in two sections: one for the verbal domain and the other for the math domain.
Correlations within the verbal domain. As can be seen in Table 4, achievement in Arabic was more strongly correlated with verbal evaluative SC (r = .29, p. < .01) than with verbal affective SC (r = -.01, p. > .05). In comparison, achievement in Arabic was weakly correlated with total verbal SC (composite of evaluative and affective- r = .10, p. > .05). These data confirms the argument made by Irving (1996) that distinction between the two dimensions (i.e., evaluative and affective) is more revealing than conflating them. It should be noted, however, that the correlation between verbal achievement and total verbal SC is much smaller than those reported by Marsh (1988, 1990) and Abu-Hilal and Bahri (2000). Marsh (1988) reported results of seven studies in which the correlations between achievement in reading and reading SC ranged between .22 and .55. Abu-hilal and Bahri (2000) reported that Arabic achievement and Arabic SC correlated at .41 and .21 for elementary and preparatory samples, respectively.
The results also supported our prediction that the value of Arabic would correlate more strongly with verbal affective SC (r = .47) than with verbal evaluative SC (r = .28). Irving (1996) reported similar results, though he used satisfaction with subject matter whereas the current study used the value of subject matter. Again, the correlation between verbal composite SC and Arabic value (r = .44) was smaller than the correlation of the latter with verbal affective SC (.47), but was larger than the correlation between Arabic value and verbal evaluative SC (r = .28).

Correlations within the Math domain. The pattern of relations within the math domain was quite similar to that of verbal domain, albeit the magnitudes were somewhat greater in the former than the latter. Math achievement was significantly related to both math evaluative (r = .64) and affective (r = .40) dimensions of SC. Although both were substantial, the difference between the two coefficients was also substantial. The correlation between math achievement and the composite math SC (r = .56) falls between the two previously mentioned coefficients. These correlations, particularly the last one, supports results reported by Marsh (1988, 1990), Abu-Hilal (2002) and Abu-Hilal and Bahri (2000).

Table 4 shows also that math value was more strongly correlated with math affective SC (r = .53) than with math evaluative SC (r = .29) though both were significant (p. < .01). This result was in support of our hypothesis that math value (attitude), which is an affective component of human cognitive structure, would correlate more strongly with yet another affective component (i.e., affective SC) than with evaluative components.
Table 4
Means, Standard Deviations and Correlation Coefficients Among the study variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>74.49</td>
<td>72.47</td>
<td>30.61</td>
<td>27.96</td>
<td>3.88</td>
<td>3.79</td>
<td>3.50</td>
<td>3.49</td>
<td>12.75</td>
<td>12.41</td>
</tr>
<tr>
<td>S. D.</td>
<td>13.04</td>
<td>18.29</td>
<td>7.28</td>
<td>8.14</td>
<td>0.82</td>
<td>1.10</td>
<td>1.07</td>
<td>1.15</td>
<td>2.77</td>
<td>3.04</td>
</tr>
</tbody>
</table>

1. Arabic Ach. | .10 | .81** | .10 | .35** | .29** | -01 | .41** | .23** | -.04 | .05  |
2. Math Ach.   | 1.0 | -.01 | .56** | .14*  | -.08 | .64** | .40  | -.05 | .13* |      |
3. VSC         | 1.0 | .23** | .81** | .96** | .13* | .29** | .44**| .25**|      |      |
4. MSC         | 1.0 | .22** | .22** | .92** | .92**| .21**| .48**|      |      |      |
5. Eva. Verbal | 1.0 | .62** | .23** | .18** | .28**| .28**| .09  |      |      |      |
6. Aff. Verbal | 1.0 | .08  | .31** | .47** | .30**|      |      |      |      |      |
7. Eva. Math   | 1.0 | .81** | .10  | .34** |      |      |      |      |      |      |
8. Aff. Math   | 1.0 | .29**| .53** |      |      |      |      |      |      |      |
9. Arabic value| 1.0 | .61**|      |      |      |      |      |      |      |      |
10. Math value |      |      | 1.0  |      |      |      |      |      |      |      |

Note. Ach.: Achievement, VSC: Verbal self-concept (composite of verbal evaluative and affective), MSC: Math self-concept (composite of math evaluative and affective) Eva.: Evaluative; Aff.: Affective

* p. < .05, ** p. < .01

Path analysis with composite SC. To further disentangle the relationships among SC dimensions and achievement, we tested the propositions of the basic I/E frame of reference model as proposed by Marsh (1988) and shown in figure 2. The propositions of the I/E model suggested that verbal achievement would have a positive effect
(relation)\(^{(1)}\) on verbal SC (external comparison) but a negative effect on math SC (internal comparison). Also, math achievement would have a positive effect on math SC (external comparison) but a negative effect on verbal SC (internal comparison). No distinction between evaluative and affective SCs was made in testing the model in figure 2.

Figure 2 shows the path coefficients (partial regression beta weights). Zero-order correlation coefficients that were reported in Table 4 are provided (in parentheses), as a footnote to figure 2 for the sake of comparison. Also, partial correlations are provided in the footnote [in brackets]. Order of numbers preceding coefficients refers to variable’s direction of influence.

---

**Figure 2. Internal/External Frame of Reference Model**

*Note.* Zero-order correlations in parentheses and partial correlations in brackets 1-3 (.10) [.18], 1-4 (.35) [-.22], 2-3 (-.01) [-.15], 2-4 (.56) [.51]

All values are significant at \(p < .01\)

The path from verbal achievement to verbal SC was positively significant (\(b = .30, p < .01\)). The partial correlation was also positively significant (.18, \(p < .01\)) however, the two variables were negatively correlated (\(b =\))

---

(1) The study is based on correlations but the jargon of the path analysis often uses effect for relationships. As in other path analysis’s papers, we will use the terms relations, links and effects interchangeably.
-10, p. > .05). These results indicated that simple bivariate correlation couldn't explain and account for the actual relationship between verbal achievement and SC. Similarly, math achievement had a positive effect on math SC (b = .81, p. < .01). Consistently with this result the two variables were significantly positively correlated (.56). This result and the previous one provided support to the external portion of the I/E frame of reference model. That is, each verbal and math achievement had a positive effect on the respective SC.

The cross-links were concerned with internal comparison process. Verbal achievement had a negative effect on math SC (b = -.30). The partial correlation (-.22) was also negatively significant (p. < .01), thus providing support to the internal comparison process. However, the simple correlation was positively significant (.35, p. < .01) indicating that the simple correlation couldn't provide the actual relationship between verbal achievement and math SC simply because it ignored yet another important relationship within the person (i.e., verbal with math achievements). Likewise, math achievement had a negative effect on verbal SC (b = -.25, p. < .01), thus providing support to the other proposition concerning the internal comparison process. However, the simple correlation was not significant (-.01). The model explained only 3% of the variance in the verbal SC (R^2 = .03, p. < .05) and 35% of the variance in the math SC (R^2 = .35, p. < .01).

In summary, all of the propositions of the I/E frame of reference model were supported when each of the SC facets was not separated into an evaluative and an affective dimension. Next, we will present the results with each SC facet was separated into an evaluative and an affective dimension.

Achievement, evaluative and effective SCs. In the previous section we addressed the basic I/E frame of reference model as proposed by Marsh (1988). However, as was noticed in Table 4, the correlations among achievements and SC facets were not consistent when SC was separated into an evaluative and an affective dimension. To examine the efficacy of such distinction we performed another path analysis. Based on the I/E frame of reference theory, we posited that math evaluative and affective SCs would positively influence math achievement but would negatively influence verbal achievement. Also, we posited that verbal evaluative and affective SC would positively influence verbal achievement but would negatively influence math achievement. Particularly, we were concerned
about the source of the negative relationships when math and verbal achievements are cross-linked with verbal and math SCs. Figure 3 depicts the path coefficients, and zero-order correlations (in parentheses), and partial correlations [in brackets] are provided as a footnote to figure 3.

Figure 3 shows that math evaluative SC positively predicted math achievement ($b = .60$, $p < .01$). However, math affective SC was a poor predictor of math achievement ($b = .02$) although the simple correlation was significant ($r = .40$). As can be noticed, the pattern of relationships that resulted when the math evaluative and affective dimensions were conflated didn't hold when the two dimensions were separated.

As for predicting verbal achievement by its respective dimensions of SC, one relationship was consistent with the propositions of the I/E model. The other relationship was not expected. Expectedly, verbal evaluative SC had a positive effect on verbal achievement ($b = .39$, $p < .01$). Unexpectedly, however, verbal affective SC had a negative effect on verbal achievement ($b = -.28$, $p < .01$). These results suggest that high regards of verbal skills (evaluative SC) may lead to higher verbal score, but liking Arabic (affective SC) may not. To the contrary, higher verbal affective SC led to lower verbal score. Therefore, while the analysis of the relationships of achievement with verbal SC supported the external part of the I/E frame of reference model, the support was only partial when verbal SC was separated into evaluative and affective.

In regard to the internal comparison process, verbal evaluative and affective dimensions had inverse effects on math achievement. Whereas the path from verbal evaluative SC was unexpectedly positive ($b = .13$, $p < .05$), the path from verbal affective SC was expectedly negative ($b = -.22$, $p < .01$).

Finally, Math evaluative SC had an unexpected positive effect on verbal achievement ($b = .32$, $p < .01$); while math affective SC had no effect on verbal achievement (.03). Again, while the analysis with conflating math evaluative and affective dimensions provided support to the hypotheses of internal comparison, the analysis that separated the two dimensions nullified such support. Math evaluative SC had a positive effect on verbal achievement - contrary to the predictions - and math affective SC had no effect on verbal achievement - also contrary to predictions. Interestingly, math affective SC had no effect on school performance whether in Arabic or math. That is liking math has nothing to do with achievement in any of
the two subjects. The model explained 25% of the variance in verbal achievement ($R^2 = .25$, $p < .01$) and 43% of the variance in math achievement ($R^2 = .43$, $p < .01$)

![Path Model Diagram]

**Figure 3. Path Model of Achievement and Self-Concept**

*Note.* Zero-order correlations in parentheses and partial correlations in brackets: 1-5 (.41) [.24], 1-6 (.64) [.47], 2-5 (.29) [.32], 2-6 (.14) [.13], 3-5 (.01) [-.22], 3-6 (.08) [-.20], 4-5 (.23) [.02], 4-6 (.40) [.02]

b 4-5 and 4-6 ($p > .10$), b 2-6 ($p < .05$), else all path coefficients are significant at $p < .01$.

**Subject value and SC.** In this part we provide tests of hypotheses concerning the relationships among SC and subject value and importance. Two path models were tested: The first assumed no distinction between evaluative and affective dimensions of SC; while the second assumed such distinction. As we proposed earlier, affective SC would be a better predictor of subject value than evaluative SC. This hypothesis applies to each of verbal and math domains. As such the first model was considered as a testing model for the second one. Since the focus was on testing the efficacy of separating SC into evaluative and affective dimensions, the results of the first model are presented for a comparison purpose and not to be judged by any theory.
Figure 4. Path Model for Combined Self-Concept and Subject Value (Importance)

Note. Zero-order correlations in parentheses and partial correlations in brackets: 1-3 (.44) [.41], 1-4 (.25) [.16], 2-3 (.21) [.13], 2-4 (.48) [.44]

b 2-3 (p. < .05), else all values are significant at p. < .01

Figure 4 provides estimates of the first model. Math SC positively significantly predicted both Arabic value (b = .12, p. < .05, r = .21) and math value (b = .44, p. < .01, r = .48). Similarly, verbal SC predicted both Arabic value (b = .41, p. < .01, r = .44) and math value (b = .15, p. < .05, r = .25). The model explained a significant variance in each of Arabic value (21%) and math value (25%). It can be seen that math SC was a better predictor of math value than of Arabic value. Also, verbal SC was a better predictor of Arabic value than math value. These results seem to be logical and no anomalies were found. However, our concern was to explore weather these results would hold if each SC facet were separated into evaluative and affective dimensions.

Subject value, evaluative and affective SC. Figure 5 provides the results of the second model. Consistent with our predictions, math evaluative SC had insignificant effects on both Arabic value (b = -.09, p. < .10, r = .10, ns) and math value (b = .04, p. > .10, r = .34). Math affective SC, on the
other hand, had significant effects on both Arabic value ($b = .22$, $p < .01$, $r = .29$) and math value ($b = .46$, $p < .01$), thus providing support to our predictions.

![Diagram showing the relationships between variables](image)

**Figure 5. Path Model for Separated Self-Concept and Subject Value (Importance)**

*Note.* Zero-order correlations in parentheses and partial correlations in brackets: 1-5 (.10) [−.07], 1-6 (.34) [.03], 2-5 (.28) [.01], 2-6 (.09) [−.14], 3-5 (.47) [.31], 3-6 (.30) [.10], 4-5 (.22) [.17], 4-6 (.53) [.34]

b 1-5, 1-6 and 2-5 ($p > .10$), else all path coefficients are significant at $p < .01$.

Verbal evaluative SC had an insignificant effect on Arabic value ($b = .01$, $p < .10$, $r = .28$), but its effect on math value was negative ($b = -.16$, $p < .05$, $r = .09$) That is, students who perceived their verbal skills to be good expressed less math value. In any case, both path coefficients provided support to our predictions. Verbal affective SC had positively significant effects on both Arabic value ($b = .40$, $p < .01$, $r = .47$) and math value ($b = .25$, $p < .01$, $r = .30$), therefore providing support to our predictions. It can be noticed in figure 5 that each of the verbal and math affective dimensions of SC had a stronger effect and was more strongly related to the value and importance of its respective domain. The explained variance in each of Arabic value and math value improved in the second model over the first model. The explained variance for Arabic value and math value were 24% and 32%, respectively. These results provided another
evidence that SC is better be conceived of as having two dimensions, evaluative and affective, rather than conflating them to one dimension.

DISCUSSION

The present study was designed to test several hypotheses related to SC theory. Particularly, we were interested in exploring the social and psychological bases of SC. As hypothesized by many researchers and as was explicated by Marsh (1988), individuals look around them to see their selves. In other words they compare themselves to others (social or external comparison) and internalize the evaluations of others (parents, teacher, peers) to form and develop their self-concepts. Also, individuals look inside themselves and compare their abilities, skills, aptitudes, and attitudes in various domains (internal comparison). Intersected with this dichotomy of SC is the conception that SC in any domain has yet another dichotomy (i.e., evaluative and affective). Both of the two dichotomies were the focus of the present study.

The present study has produced interesting results with important theoretical and practical implications. As for the relationships among SC dimensions, achievement and subject value, most of the coefficients in Table 4 were consistent with our predictions. We predicted that evaluative SC whether in Arabic or math would be more strongly correlated with achievement than with subject value. Also, we predicted that affective SC (in Arabic or math) would be more strongly correlated with subject value than with achievement. Theoretically speaking, the findings of this study supported that the facets of SC were more clearly related to other constructs when SC facets were separated into evaluative and affective dimensions. Hence, this study provided support to the argument of Irving (1996) that the two components ought to be separated and not conflated. This conclusion is probably more accurate when other variables are controlled for than when simple bivaraite correlations are investigated. Nevertheless, the simple correlations seemed to be revealing.

In accordance with expectations, the present study provided support to all of the propositions of the basic I/E frame of reference model. However, this support was evident only when evaluative and affective dimensions of each SC facet were conflated. Interestingly, the pattern of relations was a little different when each facet of SC was separated into evaluative and affective. Some of the negative relations shifted into positive ones, some of the positive relations shifted into negative ones, and some of
significant relations shifted into insignificant ones (see figures 2 and 3 for
details). The pattern of relations provided support to the hypothesis that
evaluative components in two different constructs (i.e., achievement and
SC) were substantially related; and that affective components in two
different constructs (i.e., subject value and SC) were also substantially
related.

However, the pattern of the cross-linked relations was inconsistent when
the models in figures 2 and 3 were compared. Math evaluative SC had a
positive effect on verbal achievement although, based on the I/E model its
was expected to be negative because of the internal comparison process.
Also, verbal evaluative SC had a positive effect on math achievement
when it was expected to be negative. Similarly, verbal affective SC had a
negative effect on verbal achievement when it was expected to be positive.
Interestingly, math affective SC had insignificant effects on both
math and verbal achievements when it was expected to be positive on the
former and negative on the latter.

These findings may give credence to the argument by Bong and Skaalvik
(2003) that comparison with similar others would result in strong
emotional consequences. At the same time, these findings may raise
questions about the validity of Marsh’s (1988, 1990) argument that the
internal comparison of one’s abilities in one school domain (e.g., math)
with abilities in another (e.g., verbal) would produce a negative relation
(effect) with SC in either domain. The negative relationship that has been
found by Marsh in many of his studies and by Abu-Hilal (2002) among
many others maybe an artifact of combining verbal evaluative with verbal
affective components of SC since both are highly related. However, when
the affective component is taken out of the composite SC score and then
controlled for, the external (or social) comparison with others seems to
produce positive relationships between SC (i.e., only the evaluative
component) and achievement in the two different domains (verbal and
math). That is, it is not necessary that if one sees him/her self as being
good in one domain should see him/her self as weak in another. Marsh
(1988) assumed that if one sees one’s self as good in one subject, one may
see one’s self as weak in another. Consequently, Marsh assumed that such
internal comparison within one’s self in conjunction with external
comparison would result in a negative relationship between achievement
in one domain, say verbal, and SC in another, say math.
Based on our results we believe that it could be the case only when the SC affective component is combined with the evaluative component where emotions and cognition are mixed. Also, we argue that if one perceives him/her self as being good in one domain, he or she may not consider him/her self as weak in another. The results of this study provided some support to this contention. Students who perceived themselves as good in Arabic or in math performed well in both Arabic and math. However, having a high on verbal affective SC (i.e., liking Arabic) resulted in weak in math as well as Arabic. Also, the significant negative relationship between math SC and verbal achievement disappeared when only the math affective component was considered and other components were controlled for. That is, the negativity of relationship between verbal SC and math achievement has disappeared when the former was separated into evaluative and affective dimensions. Whereas the relationship becomes positive in the case of evaluative-achievement, it becomes negative in the case of affective-achievement.

Furthermore, the relationship didn’t even exist between math affective SC and math or verbal achievement. This may indicate that when affective component is separated from evaluative component, the social (external) comparison still holds while the internal comparison has no effect on the relationship between SC in one domain and achievement in another. It seems from these findings that treating verbal SC and math SC as globally as was done by Marsh (1988) and Abu-Hilal and Bahri (2000) is rather misleading and the distinction between evaluative and affective dimensions of SC is necessary both theoretically and practically. Consequently, we are inclined to attribute the cross-linked-negative relationships between SC in a specific domain and achievement in another to the fact that affective component was part of the conflated SC in that specific domain and not to the internal comparison process. Therefore, we propose that the dichotomy of internal and external comparison processes be more closely investigated.

On the practical front, it is evident that any intervention to improve achievement should focus on the evaluative dimension of SC, while any intervention to boost attitudes toward subject matter (e.g. math) should focus on the affective dimension. More specifically, these results provide further evidence that when we think of intervention programs to boost SC to improve achievement in math, we need to focus more on the evaluative dimension than on the affective dimension. We ought to do that simply
because the affective component of SC - when separated from the evaluative component - was nearly unrelated to achievement and when the evaluative component was considered in the equation and controlled for.

Probably the results of the models (figures 4 and 5) that examined the pattern of relations among the SC dimensions and subject value or importance provide very clear evidence why we should separate rather than conflate SC dimensions. The findings were more consistent with the predictions made in the introduction of this study. Separating SC into evaluative and affective made relationships more differentiated. These findings also provide evidence that affective components of SC belong to the affective self rather than social self. The construct validity of separating SC dimensions is evident by virtue of the pattern of relations among evaluative, affective and attitudes constructs. Whereas the social self -as reflected in the evaluative component- was weakly related to attitudes (subject value); private self -as reflected in the affective component (liking subject matter)- was strongly related to another affective component, attitudes.

Practically speaking, these results imply that if we intend to improve the value or importance of a subject matter, we ought to work on the affective dimension of SC rather than the evaluative. Specifically, to improve Arabic value among students we ought to work on the verbal affective dimension of SC rather than the evaluative dimension, simply because the latter was much less related to Arabic value.

In conclusion, SC should be conceived of as having two dimensions, evaluative and affective. The present study provided evidence to the construct validity of such conceptualization. However, the results of this study should be considered tentative ones and not be over-generalized to other populations. The sample that we used in this study has specific cultural and socio-linguistic characteristics that are different from those upon which the I/E frame of reference model and other theories were based. The results of this study, however, should encourage researchers to further our understanding of the construct validity of such conceptualization by more research with more diverse populations.

References


Redundant Terms in Yemeni Students' FL writing: A case study showing another evidence of Language transfer

Ahmad Muhammed Al-Samawi
Redundant Terms in Yemeni students’ FL writing: A case study showing another evidence of Language transfer

Dr. Ahmad Muhammed Al-Samawi
Department of English, Faculty of Education
Sana’a University

Abstract

The study is intended to find out the erroneous redundant terms in the English writing of Yemeni students at the university level and to trace their possible causes. It is hypothesized that the language transfer is the main cause of erroneous redundant terms in Yemeni students’ writing in English.

The study is a focused descriptive research where free writing test was used through which data was obtained. Error analysis was applied to 109 scripts as a primary technique, identifying and classifying redundant erroneous terms. A combination of constituent analysis and contrastive analysis was used as a secondary technique to trace the causes of such erroneous terms. The redundant terms were categorized according to their parts of speech. The parts of speech that could be divided into more subcategories were further classified into subcategories. Then the frequencies of occurrence of each category and subcategory as well as percentages were calculated. Based on the constituent analysis and the contrast, the terms were grouped according to their possible causes.

Analysis showed that the students produced 289 terms that are deemed in English erroneous redundant. These redundant terms represented all the English parts of speech except adjectives. Redundant articles took the first place followed by prepositions, pronouns, verbs, conjunctions, nouns and adverbs. Within the subcategories, the definite article ‘the’ had the highest frequency of occurrence followed by the pronoun ‘it’, ‘Verb to be’ and the indefinite article ‘a’ and finally the prepositions ‘of’ and ‘to’. As for the possible causes, 58.3% of the errors were due to L1 transfer. The rest were a sign of either ignorance of concerned English rules (27.8) or overgeneralization, i.e., wrong applications of certain rules (13.9). The results proved the research hypothesis that the erroneous redundant terms which students produced in their free writing was mostly due to the interference of L1. The ignorance of L2 rules and the wrong applications of L2 rules contributed lightly to these redundant terms. The results were discussed on the light of the contrast between Arabic and English and in relation to the previous studies.
تكرار المعنى في كتابة الطلبة اليمنيين باللغة الأجنبية:
دراسة حالة كدليل جديد على تأثير اللغة عالم على اللغة المكتسبة

ملخص

هدفت الدراسة إلى اكتشاف التكرار الخاطئ للمعنى في كتابة الطلبة اليمنيين باللغة الإنجليزية في المستوى الجامعي ومحاولة معرفة الأسباب المحتملة وراء هذا التكرار، حيث افترض الباحث إن تأثير اللغة عالم هو السبب الرئيسية وراء هذه الظاهرة. والدراسة وصفية محورية استخدم الباحث فيها اختباراً غير مقيم في الكتابة جمع من خلال المعلومات المطلوبة للدراسة مستخدمًا طريقة تحليل الأخطاء في فحص ورقاً اختبار كادة تحليل رئيسية حيث تضمن التحليل تحديد الأخطاء ثم تصنيفها. كما استخدم الباحث مزيجاً من التحليل المفرداتي والتحليل المقارن كقاعدة ثانوية لمعرفة الأسباب وراء ظاهرة التكرار الخاطئي. وقد تم ترتيب الألفاظ ذات المعنى المتكرر ثم تصنيفها حسب أقسام الكلام ثم تقسيم الأنواع التي تسمح بالتسهيل إلى أقسام حسب تلك الأنواع. وتتم بعد ذلك حساب التكرارات والنسب المتطرفة لكل نوع وكل قسم. ثم صنفت الألفاظ حسب السبب المحتمل ورائ كل خطأ.

أظهرت الدراسة أن الطلبة أن التكرار قد استخدموا 289 نظراً مكرراً تكراراً خاطئاً في كل قسم من أقسام الكلام في اللغة الإنجليزية وفي مقدمتها أدوات التعرف والتكثير ثم حروف الجر فالضمائر، فالفاعل، فالألفابط، وأخيراً الأسماء والظروف. أما بالنسبة للتقسيم الجرعي فقد جاءت أداة التعرف "ال" في المقدمة ثم الصميم "هو/هي" لغير العاقل جاء بعده فعل الكيفية ثم أداة النكرة وأخيراً أحرف من حروف الجر. أما الأسباب المحتملة وراء هذه الظاهرة فقد جاء تأثير اللغة عالم في المقدمة حيث كان مسؤولاً عن 30% من الأخطاء تلاه الجهل بالقاعدة اللغوية 27.8% ثم التعليم الخاطئ 13.9% وبالتالي تكون الدراسة قد أثبتت صحة فرضية البحث في أن السبب الرئيسي للكرر الخاطئي للمعنى لدى متعلمي اللغة الإنجليزية هو تأثير اللغة عالم.
Introduction

Despite the overwhelming research on language transfer that reached its climax in 1960s and 1970s, the concept is still appealing to many researchers. Four plausible reasons stand behind such continuity. The first is related to our limited ability to compare and contrast all the linguistic aspects of all the existing human languages to find how each language leaks into others leading learners of any language (L2) other than their first language (L1) to transfer some rules from their L1 into L2. So, the field of comparative linguistics is still wide enough to accommodate thousands of studies. The second is related to the persistent traditional linguistic venture to compare and contrast world languages to find similarities and differences that constitute basic procedure for what James (1980, 2) calls “linguistic typology”. The third is associated with the new world system that resulted from political and economic changes during the last two centuries leading to a new era of communication in which few languages dominate international affairs. Such dominance resulted in giving these few languages a universal function, necessitating their acquisition upon many speakers of other languages. Such necessity led inevitably to the development of programs and methods for teaching these languages as second or foreign (SL/FL) ones. One of the goals of SL/FL teaching theories is to find a valid interpretation of the most noticeable phenomena in SL acquisition, i.e. the “interlanguage” (Selinker, 1972). The fourth is related to the growing interest in discovering the universal linguistic properties of human languages, as proposed by Chomsky (1965). The universal hypothesis is based on the assumption that “while every language may have its individuality, all languages have enough in common for them to be compared and classified into types” (James, 1980, 2). Although these four reasons do not operate individually; i.e. they interact with each other as they form interrelated and overlapping constituents of linguistics – the scientific study of language (Crystal, 1980), the present research affiliates with the second reason, namely SL/FL teaching.

Statement of the Problem

Arabic is believed to be a language of flexible structure. That is, the word order is not fixed; it permits the movement of almost all the constituents of the sentence utilizing what Chomsky (1965) calls transformational
rules. It is also believed that Arabic is one of the languages that prefer repetition, i.e. repeating some lexical items that have the meanings or functions of already mentioned items in the same sentence. This feature of repetition is reflected in the existence of many terms that are free functional morphemes in nature at the morpheme or word level, but redundant with no function at the sentence level. To know whether the term is redundant or not requires either text analysis at the sentence level or comparison of Arabic to other languages. Nevertheless, the feature of repetition influences Arabic speakers' acquisition of other languages that lack such a feature, like English. So, Arab students are likely to use such a feature when they write or talk in English. However, analyzing Arab students' writing in English may reveal the transfer of this feature, and others as well, in a clearer and more systematic way than when analyzing their speech.

Arabic is the only formal language in Yemen. English is taught in public schools as a foreign language starting from the seventh grade. At the university level, it is either taught as a requirement course or as a major of study in specialized departments in faculties of arts and education (where the present study has originated). In the first, more attention is paid to the linguistic theory; in the second, the program focuses on English and American literature while the program in the third is run for preparing teachers of English for basic and secondary education. To be admitted to any of these departments, students should hold a secondary education certificate and must pass an entrance exam in English.

The researcher, having taught many specialized and language skills courses at the English Department, Faculty of education, Sana'a University, has noticed that the influence of Arabic on students' acquisition of English was remarkable, especially in writing. One of the areas where Arabic seems to have very clear influence is the redundant use of the English morphemes at the sentence level. So, the present research aims at analyzing a sample of the English writing of Yemeni students at the second level of the English Department, Faculty of Education, Sana’a University to find out the erroneous redundant terms and to trace their possible causes. In other words, the research attempts to answer the following question:

What are other possible causes of erroneous redundant terms which Yemeni students produce in their writing?
It is hypothesized that the language transfer is the main cause of erroneous redundant terms in Yemeni students’ writing in English.

The research is conducted with the view that it would increase the awareness of those who are involved in teaching English to Yemeni students in particular and Arab students in general and to provide them with a basis for developing teaching techniques that would eliminate the effect of negative language transfer. The same hope was felt regarding those who are involved in developing materials for teaching English to Arab students to be aware of such a problem and consider it when preparing and organizing language materials. The research adds to the literature in language teaching and language transfer, especially in the area of redundancy that has not been separately and adequately tackled. Previous studies that used contrastive and error analysis have called on the topic accidentally, when they discovered these redundant terms as part of the results obtained. For example, the best recent study that tackled these redundant terms in Yemen was the one conducted by Hago (1998). However, such a study was directed towards discovering and analyzing Yemeni students’ English writing performance in general, but reported these redundant terms as one of the categories of errors produced by Yemeni students. Thus, as the present study is specifically designed to investigate erroneous redundant terms, it is limited to such a purpose. Besides, it is limited to Yemeni students at the university level, though the results can be generalized to Arab students learning English as a foreign language at the same level since they share the same L1.

**Language Transfer:** Transfer, as defined by James (1980, 11) is the effect of learning a particular task on the subsequent learning of another task. In language learning, “transfer is the process of using knowledge of the first language in learning a second language” (Ellis, 1985, 305). The concept of language transfer was associated with behaviorist learning theory that dominated education during the first half of the last century. Behaviorists consider learning as a habit formation where the learners form new habits as they acquire new ideas or concepts. Learning a second or foreign language means forming new linguistic habits. However, the old habits may get into the way of the new habits either facilitating or preventing new habits from being formed in a correct way. As Mukattash (1980) points, “patterns learnt first have priority over patterns learnt latter” (p. 136). Since L1 is learnt first (old habits), it has the priority of being internalized into the brain of the learner over the rules of any new
language. Thus the rules of L1 may come in the way of internalizing the rules of L2. The result is either facilitating the learning of new language rules or producing errors. The first happens when the rules of the two languages are similar (positive transfer), and the second happens when the rules of the two languages are different (negative transfer) (James, 1980; Ellis, 1985; Larsen-Freeman & Long, 1991). As L2 teachers are responsible for improving learners’ L2 proficiency, they should facilitate accurate learning and prevent errors from happening. In other words, as behaviorists argue, the role of the teacher is to prevent old habits from interfering with the new habits. This can be achieved by studying the rules of the two languages and contrasting them to find the differences and the similarities between these rules. Such a procedure is called ‘contrastive analysis’. Similarities will facilitate learning; differences are what make learners produce errors in L2. Differences, as Ellis (1985) points, “can be identified linguistically” (p. 26). The teachers can predict such errors before they happen as they focus on these differences when teaching before negative transfer or interference, as behaviorists termed it, takes place. Teachers should provide learners with sufficient practice of L2 rules in the form of patterns that are intensively drilled until they are internalized. Such a view led to the emergence of the audiolingual method in language teaching.

Behaviorists’ view of errors was examined theoretically and empirically by the mentalists who concluded that L1 is not the only cause of errors. For example, Dulay and Burt (1973; reported in Ellis, 1985, 29) found that only 3% of the errors produced by Spanish speaking children could be traced to L1. On the other hand, Mukattash (Also reported in Ellis, 1985, 29) found that 23% of the errors produced by Arabic-speakers were due to L1 interference. No one could deny that L1 influence L2 performance (Larsen-Freeman and Long, 1991, p. 56), but it is not the only source of errors. As Ellis (1985) argues, L1 may contribute to learning in entirely different ways, such as avoidance of rules that are not in L1, transferring under certain conditions or using L1 as a resource from which learners borrow consciously to improve their performance. As L2 learners approach towards the proficiency level in L2, they may develop their own system by which they build their L2 proficiency. Such a system may differ from L1 and L2 as well. This system was termed “interlanguage”. Interlanguage, as Larsen-Freeman and Long (1991) describe, is “a continuum between L1 and L2 along which all learners traverse” (p. 60). According to Ellis (1985), Selinker was the first to use
this term to describe such a system. However, Larsen-Freeman and Long (1991) report that Richards (1971) was the first to term errors that could be traced to L1 as interlingual errors and errors that could be attributed to other factors than L1 as intralingual. Selinker (1972) suggests five main processes that work in interlanguage: language transfer, overgeneralization, transfer of training, L2 learning strategies and L2 communication strategies. By transfer of training, Selinker means the rules of L2 that are acquired early overlap and produce the interlanguage errors. Nevertheless, as behaviorists view of errors was criticized, the contrastive analysis (the tool used by behaviorists for predicting errors before they happen) was also refuted. For example, in criticizing the linguistic basis of the contrastive analysis, Ellis (1985) points out that when using the ‘translation equivalence’ ideas for two sentences to be truly equivalent, “they would have to perform similar communicative functions as well as to share structural similarities” (p. 31). Contrastive analysis, however, did not completely lose its ground in language teaching. Rather, as James (1980) explains, contrastive analysis continues to be a useful linguistic and pedagogical instrument, not for predicting errors, but for contrasting two languages at the micro and the macro levels, selecting and grading materials for second or foreign language teaching and testing learners’ performance.

As contrastive analysis was attacked by mentalists, the concept of interlanguage started to grow leading to the flourish of another linguistic technique, i.e., error analysis, as an instrument by which learners’ errors are identified, classified, analyzed and explained according to their possible causes. An error in mentalists’ view is “a systematic deviation made by learners who have not yet mastered the rules of the L2” (Larsen-Freeman and Long, 1991, 59). So, errors are developmental strategies that may even have positive role in second/foreign language learning. Error analysis is the tool that helps figure out the role of these errors in language acquisition. Being one of the most influential figures in error analysis, Corder (1967) lists five procedures for error analysis:

(1) Select a corpus of language.

(2) Identify the errors in the corpus.

(3) Classify the errors.

(4) Explain the errors (i.e., identify their possible causes).
(5) Evaluate the errors (i.e., how serious they are).

For the present study, the first four procedures are followed consecutively; the last is implied in the discussion of the results. In other words, the researcher used the students’ answer to a free composition question where he identified the erroneous redundant terms, classified them according to their parts of speech and identified the possible causes leaving their evaluation to a later section.

**What is redundancy?** Lexically, the term ‘redundancy’ refers, among other meanings to the state of unneeded, unwanted, tautology. In Webster American Dictionary it refers linguistically to the inclusion of more information than is necessary for communication. So, any linguistic item that is not needed is redundant. At the level of the sentence, however, distinction has to be made between erroneous redundancy and acceptable redundancy. Erroneous redundancy refers to the inclusion of lexical items that are grammatically wrong or semantically not needed. Acceptable redundancy refers to the inclusion of lexical items that are grammatically correct but semantically not needed. Some researchers called redundant items in L2 students writing ‘copies’ of items that have been produced before, (Pavesi, 1984; reported in Larsen-Freeman and Long, 1991); others have termed it ‘overuse’ (Zobl, 1985; also reported in Larsen-Freeman and Long, 1991).

Although not within the interest of the present study, there is another type of errors connected to redundancy but goes in the opposite direction of the previous type called redundancy reduction or, as Littlewood (1998) called, simplification. SL/FL learners may reduce functional and inflectional morphemes in such a language to the minimum items required for conveying the meaning (Littlewood, 1998). These errors are developmental or ‘intralingual’ as Richards (1974) indicates.

**Possible causes of erroneous redundancy:** Larsen-Freeman and Long (1991) conclude that among other ways first language (L1) may affect second language acquisition (SLA) is by causing learners to overproduce certain second language (L2) forms. Meanwhile, Ellis (1985) states that one of the possibilities that a comparison between two languages may reveal is that “an item in the first language is absent in the target language” (p. 26). Richards (1974) identifies various strategies associated with developmental or ‘intralingual’ errors. One of these strategies is the ‘false concepts hypothesized’ which refers to errors resulting from faulty
understanding of target language markers. Comparing naturalistic acquirers with instructed learners, Pavesi (reported in Larsen-Freeman and Long, 1991) found that instructed learners exhibited significantly more frequent noun retention (noun redundancy) while naturalistic acquirers produce significantly more resumptive pronoun copies (pronoun redundancy). Thus, the possible causes of erroneous redundancy can be summed up into three main causes: L1 transfer, faulty understanding of TL concepts and a learning strategy. These three causes fall within the five factors suggested by Selinker (1972) that contribute to the learner’s interlanguage.

As mentioned earlier, Arabic is one of the languages that prefer repetition, i.e. repeating some lexical items that have the meanings or functions of already mentioned items in the same sentence. Arabic speakers, including Yemenis, use parallel constructions a lot and, as Kaplan (cited in James, 1980) demonstrates, they tend to transfer this preferred rhetorical structure to L2. On the other hand, Kleinman (1977) reports Arabic speakers avoiding English passive. Studies on errors produced by Yemeni students, however, are not many, especially in redundancy. The few studies available tackle redundancy unintentionally. Nevertheless, it is worth looking at the results of some of these studies. Al-Mekhlafi (1999) ran a contrastive analysis between Arabic and English in question formation. The empirical part of his study shows that L1 transfer plays a role in students’ errors though it is not the only factor. Al-Gadi (2000) analyzed the spelling errors of 100 Yemeni students at teacher training institutes in English and concluded that the mother tongue interference was the first reason behind spelling errors. He did not report, however, how many errors were attributed to L1 or to other factors. In a more recent contrastive study of prepositions of time in Modern Standard Arabic and Modern English by Al-hardalow (2001), fifty Yemeni secondary school students were given a translation task from Arabic into English. They produced 142 errors, which Al-hardalow attributed to the confusion the students have about the functions of these prepositions due to their use in Arabic. Gasmallah (2001) also conducted a study on lexical errors produced by Yemeni students at third secondary level, using two tests to investigate their various lexical faculties and their competence to write correct English. The results of the error analysis, however, are not clearly reported.
In relation to redundancy, perhaps the study conducted by Hago (1998) was the one that tackled redundant terms broadly. Hago analyzed a sample of 100 Yemeni students’ writing performance at the university level. Similar to the present study, the students were at the second level of the English department from different campuses of Faculty of Education and were given a free composition test. The test, however, was completely designed for research purpose; i.e., to analyze students’ performance in general as a basis for evaluating their strengths and weaknesses in writing. Hago identified errors, calculated their frequencies and classified them into three main categories: spelling, syntax and lexical. The syntax errors (where redundancy was reported) were counted 248 errors and were further classified into six types: articles (45), tense and verbs (152), prepositions (5), concord (32), pronominal (11) and others (3). However, erroneous redundancy represented only 14% of the syntax errors with 11% in articles, 2% in pronouns and less than 1% in verb to be. Hago concluded that some redundant articles and all redundant pronouns could be attributed to L1 interference. Other redundant articles could be due to the ignorance of rule restrictions of the TL (overgeneralization) and inadequate English teaching during early stages. The first cause might be valid; the second, however, needs investigating the type of teaching the students had at early stages. Following Richards (1974), Hago interpreted the produced redundant verb to be as a “faulty comprehension of distinctions” (p. 80), which also needs investigating students’ comprehension of these distinctions in TL.

Osman (2002) contrasted interrogation in Standard English and Modern Standard Arabic and reported a great scale of differences between them. To find out how these differences may lead to certain difficulty for the learners of English, Osman selected 100 Yemeni secondary students from public and private schools and gave them two tasks: a translation task at the sentence level and a conversion task. The students produced 649 erroneous questions. He concluded that 46% of the errors were due to L1 interference including redundancy of auxiliary (‘do’, ‘have’, ‘did’, are, and ‘is’) with retained statements. Redundancy was reported to be one of the difficulties which Yemeni students face when forming English questions. The rest of the errors were interpreted as a result of the complexity of English grammatical rules in forming questions.
Motivation for the study

As one of the department staff, the researcher, was assigned to teach Writing III for two consecutive academic years. So, after the students finished the exam, all the scripts were collected from the department for marking. As the researcher went on marking, he noticed the influence of L1 clearly manifested on the students’ answers to the first question. The research ideaimmerged.

Method and procedure

The present research is a focused descriptive study where the results of a free writing task was used through which data was obtained. It also used error analysis as a primary technique for analyzing the data obtained, identifying and classifying redundant erroneous terms, and a combination of constituent analysis and contrastive analysis as a secondary technique to trace the causes of such erroneous terms. Focused descriptive methodology, as Larsen-Freeman and Long (1991) explain is used to “explore a particular issue (e.g. the influence of the native language on SLA)” (p. 17). The contrastive analysis is mainly used to prove the research hypothesis that the main cause of erroneous redundant terms is the interference of students’ L1.

Participants and Setting

As mentioned before, the study was carried out using the results of a free writing task. Such a test was given to the second year Yemeni students at the English Department, Faculty of Education, Sana’a University at the end of the first semester of the academic year 2001/2002. The task was one out of six questions that made up the final exam of the course ‘Writing III’. As the title indicates, ‘Writing III’ is the third of four courses in the writing skills course that aims at improving students’ writing in English, especially academic writing.

Although the number of the students who sat for the exam was 127, only 109 scripts were used for analysis. The rest of the scripts belonged to the course repeaters, who were excluded to insure homogeneity of participants in relation to the length of exposure to English in general and to the course material in particular. The total time given for the whole exam was 120 minutes. However, the majority of the students finished it in an average time of 90 minutes.
The Data

The exam consisted of six questions. The question that was used to generate the required data for the present study was as follows:

A. "Smoking is a dangerous enemy". Write an article about this topic between 50 and 1000 words. (30 marks)

It was the only free writing task (with the restriction of topic) in the whole test. Besides, the answers to such a question formed a long enough text for analysis. To differentiate between tests and tasks, Larsen-Freeman and Long (1991, 41) describe tests as tools devised to measure what the learner knows and does not know of the target language while tasks are tools devised to reveal what the learner knows. Earlier, they described the free writing task saying, "Perhaps the least controlled of all elicitation procedures is the free composition. Aside from the establishment of a topic, there is no intervention by the researcher" (p. 30). Nevertheless, to reduce the Hawthorne Effect (i.e., the students’ answers could be influenced by their knowledge that their production will be used for research purposes), the participants were not told that their answers would be analyzed or used for research purposes.

The task topic (i.e., smoking) reflects a daily life practice insuring familiarity of such a topic and the availability of the terms required for the task within the students’ linguistic repertoire. As can be seen, the question was given 30 marks (28.57% of the total marks). The course is counted three credit hours with a total mark of 150 (45 for mid term and class participation and 105 for the final exam). The distribution of marks was based on the level of difficulty associated with each question and the amount of time needed to finish it.

After the marking was finished and the grades were reported, permission had been taken from the department to use the scripts again for the research purpose. So, the researcher went again through the 109 scripts, examining only the answers to the first question, identifying the erroneous redundant terms at the sentence level, marking them with colored marker and categorizing them according to their parts of speech using a separate sheet for such categorization. The parts of speech that could be divided into more subcategories, such as articles, pronouns, verbs, prepositions and conjunctions were further classified into subcategories that belong to each part. For example, 'articles' were further categorized into two
subcategories: ‘definite’ and ‘indefinite’ articles. Then the frequencies of occurrence of each category and subcategory as well as percentages were calculated. Sentence analysis was associated with contrast between Arabic and English for each redundant term to find out the possibility of L1 interference. Finally, and based on the contrast and the observed language level of the students, the terms were grouped according to their possible causes. In other words, analysis was performed in five stages:

Stage One: Identifying the erroneous redundant terms in each sentence.

Stage Two: Categorizing these redundant terms according to the part of speech to which they belong and calculating the frequencies and percentages of occurrence of each category.

Stage Three: Dividing the categories that can be divided into subcategories and calculating the frequencies and percentages of each subcategory in relation to the main categories.

Stage Four: Contrasting Arabic and English in the usage of these terms.

Stage Five: Grouping these terms according to their possible causes.

These stages match the second, third and fourth procedures proposed by Corder (1967) above. The first procedure of Corder has, of course, been taken when selecting these redundant terms as the research topic. The last procedure is implied in the discussion of the results later. After the marking was finished and the grades were reported, permission had been taken from the department to use the scripts again for the research purpose. So, the researcher went again through the 109 scripts, examining only the answers to the first question, identifying the erroneous redundant terms at the sentence level, marking them with colored marker and categorizing them according to their parts of speech using a separate sheet for such categorization. The parts of speech that could be divided into more subcategories, such as articles, pronouns, verbs, prepositions and conjunctions were further classified into subcategories that belong to each part. For example, ‘articles’ were further categorized into two subcategories: ‘definite’ and ‘indefinite’ articles. Then the frequencies of occurrence of each category and subcategory as well as percentages were calculated. Sentence analysis was associated with contrast between Arabic and English for each redundant term to find out the possibility of L1 interference. Finally, and based on the contrast and the observed
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Results

Analysis showed that the students in their answers to the first question produced 289 terms that are deemed in English as erroneous redundant. As mentioned above, these terms were categorized according to their parts of speech. It was found that these redundant terms represent all the English parts of speech except adjectives. The redundant articles come in first place with 46% of the total number of these redundant terms. Prepositions occupied the second place (18%), while pronouns came in the third (13.8%), then the verbs, conjunctions, nouns and adverbs with less than 10% of the total each. Table (1) below summarizes the results and lists theses erroneous terms in rank order.
Table (1)

Frequencies and percentages of erroneous redundant terms

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency of occurrence</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles</td>
<td>133</td>
<td>46.0</td>
</tr>
<tr>
<td>Prepositions</td>
<td>52</td>
<td>18.0</td>
</tr>
<tr>
<td>Pronouns</td>
<td>40</td>
<td>13.8</td>
</tr>
<tr>
<td>1. Verbs</td>
<td>25</td>
<td>8.7</td>
</tr>
<tr>
<td>Conjunctions</td>
<td>22</td>
<td>7.6</td>
</tr>
<tr>
<td>Nouns</td>
<td>10</td>
<td>3.5</td>
</tr>
<tr>
<td>Adverbs</td>
<td>7</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>289</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Within the categories that were further classified into subcategories (see, Table 2 below), the definite article ‘the’ had the highest frequency of occurrence (111 times), representing 83.5% of the articles and 38.4 of the total. It was followed by the pronoun ‘it’, occurring 28 times redundantly, representing 70% of the redundant pronouns and 9.7% of the total. ‘Verb to be’ within the category of ‘Verbs’ and the indefinite article ‘a’ within the category of ‘Articles’ shared third place with 7.6% of the total terms each. The fourth position was shared between the prepositions ‘of’ and ‘to’ with 28.9% of the prepositions and 5.2% of the total each.
Table (2)

The most frequent subcategories of the erroneous redundant terms

<table>
<thead>
<tr>
<th>The term</th>
<th>Frequency</th>
<th>% of the category</th>
<th>% of the total</th>
</tr>
</thead>
<tbody>
<tr>
<td>The</td>
<td>111</td>
<td>83.5</td>
<td>38.4</td>
</tr>
<tr>
<td>It</td>
<td>28</td>
<td>70</td>
<td>9.7</td>
</tr>
<tr>
<td>verb to be</td>
<td>22</td>
<td>88</td>
<td>7.6</td>
</tr>
<tr>
<td>a</td>
<td>22</td>
<td>16.5</td>
<td>7.6</td>
</tr>
<tr>
<td>of</td>
<td>15</td>
<td>28.9</td>
<td>5.2</td>
</tr>
<tr>
<td>to</td>
<td>15</td>
<td>28.9</td>
<td>5.2</td>
</tr>
</tbody>
</table>

As for the possible causes behind these errors, the sentence and the contrastive analysis revealed that 58.3% of these errors were due to L1 transfer. The rest were a sign of either ignorance of relevant English rules (27.8%) or overgeneralization, i.e., wrong applications of certain rules (13.9%). Table (3) shows these possible causes and the percentage of redundant terms attributed to each cause.

Table (3)

Possible causes of redundant terms

<table>
<thead>
<tr>
<th>Possible Cause</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1 transfer</td>
<td>58.3</td>
</tr>
<tr>
<td>Ignorance of the TL rules</td>
<td>27.8</td>
</tr>
<tr>
<td>Overgeneralization</td>
<td>13.9</td>
</tr>
</tbody>
</table>

As mentioned earlier, these three possible causes were identified on the basis of the sentence analysis associated with the contrast between the use of these terms in students L1 (Arabic) and the target language (English). To find out how much each of these possible causes is responsible for each subcategory, the percentages were calculated and reported as shown in Table 4 below:
Table (4)
Percentages of redundant categories according to their possible causes

<table>
<thead>
<tr>
<th>2. Category</th>
<th>L1 transfer</th>
<th>Ignorance of L2 rules</th>
<th>Overgeneralization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Articles</td>
<td>72.5</td>
<td>0</td>
<td>27.5</td>
</tr>
<tr>
<td>Prepositions</td>
<td>70</td>
<td>14.5</td>
<td>14.5</td>
</tr>
<tr>
<td>Pronouns</td>
<td>66.7</td>
<td>33.3</td>
<td>0</td>
</tr>
<tr>
<td>Verbs</td>
<td>25</td>
<td>75</td>
<td>0</td>
</tr>
<tr>
<td>Conjunctions</td>
<td>60</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Nouns</td>
<td>0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Adverbs</td>
<td>66.7</td>
<td>33.3</td>
<td>0</td>
</tr>
</tbody>
</table>

Discussion

As can be seen from Table (4), the research hypothesis that claims L1 interference to be the main cause of erroneous redundant terms has been supported to a great extent. Verbs and nouns were the only items in which erroneous redundancy was not mainly due to L1 interference. The following is a detailed discussion of the obtained results of each category where a marginal contrastive analysis between Arabic (L1) and English (TL) is applied. It is important to note that the contrastive analysis used in this research utilizes implicitly the taxonomic or the structural model (James, 1980). Such a model is based on categorizing the constituents of the sentence according to their relatedness to each other. The model operates at the surface level. Erroneous redundant terms are items that appear at the surface level, too. However, the immediate constituent technique is not explicitly applied. Rather, the structural necessity and grammatical accuracy of each redundant term is examined in relation to its immediate constituent and the whole structure of the sentence. Thus the taxonomic model is logically the appropriate one for the current analysis. The two weaknesses of the model pointed out by James (1980),
i.e., structural ambiguity and expression of the same meaning by different devices, have no application in the current research since these redundant terms are erroneous and make no changes to the meaning.

**Redundant Articles:** Table (1) above shows articles as the most frequent erroneous redundant terms (46%) with the definite article ‘the’ representing 38.4% of all the erroneous terms. Moreover, this article occupies 83.5% of the redundant articles leaving only 16.5% for the indefinite articles ‘a’ and ‘an’. Such results support the findings of Hago (1998) where articles were reported to occupy the first place among committed errors. Hago, in his discussion of the obtained errors, argues that “the most wrong usage is the redundant addition of the definite article ‘the’ before nouns denoting generic reference” (p. 75). Table (4) above shows that 72.5% of these redundant articles happened because of language transfer. Although they are simple and easy to learn, English articles amazingly constitute one of the most confusing parts of English for Arab students. Contrasting the use of these articles in Arabic and English may remove the wonder. Arabic has only one article equivalent in meaning and in function to the article ‘the’ in English. In both languages, the definite article precedes the noun, and can be used before singular and plural, countable and uncountable nouns. However, there are more restrictions in English about using the definite article before proper nouns than in Arabic. The latter has very few restrictions, i.e., not to be used before some human names and places of foreign origin, such as Syria, Lebanon, America, and so on. So, proper nouns, such as, Samawi, Yemen, Cairo, and Chemistry; and abstract nouns such as Islam, freedom and love should have in Arabic the definite article “al” before them. This difference between Arabic and English use of definite article creates a lot of confusion to Arab students learning English leading them to use or to omit it haphazardly. Such a use or omission of the definite article causes students to err either by using it before nouns where it is not grammatically allowed (redundancy) or leaving it where it is required (redundancy reduction). For example, two participants in the current study wrote the following sentences:

Also **the** smoking causes illness *. (L1 transfer)

And **the** Islam forbids smoking *. (L1 transfer)
The Arabic equivalent translation is:

Aydhan at-tadkheenu (al-tadkheenu) Yusabib maradhan.

Wal Islamu yharrim at-tadkheen.

In both sentences, the use of ‘the’ before ‘smoking’ and ‘Islam’ deems such a use as erroneous redundancy in English. In Arabic, the definite article ‘al’ must be used before ‘Islam’ and ‘smoking’ otherwise the sentence is deemed incorrect. It is then clear that the erroneous use of this article was caused by the interference of students’ L1 rules that were previously acquired.

On the other hand, the English indefinite articles ‘a’ and ‘an’ have no equivalent articles in Arabic. Indefinite nouns are left with no preceding articles to indicate their indefiniteness regardless of being countable or uncountable. Such a difference also constitutes another source of difficulty for Yemeni students learning English leading them to err, either by omitting these articles or by using them before uncountable nouns. Looking at the results of the current study (Table 2), the redundant indefinite article ‘a’ shared the third place with ‘verb to be’ in the list of errors, representing 7.6 of the total errors and 16.5% of the erroneous articles. The results also confirm the findings of Hago (1998) who reports “errors resulting from the redundant use of the indefinite article before mass nouns and with phrases of uncountable nouns” (p. 76). In the current study, one of the participants wrote:

People have the right to breathe a pure air *.

The article ‘a’ is erroneously redundant resulting from wrong application of the English grammatical rule (overgeneralization). This could be the direct cause; the indirect cause could be the difference just indicated between Arabic and English.

The above contrastive analysis suggests, with great confidence that in their erroneous use of redundant definite and indefinite articles, the participants in the present study were mostly influenced by their L1.

**Redundant Prepositions:** Similar to articles, prepositions are considered one of the most confusing aspects for Arab students who learn English. In general Arab students including Yemenis usually commit errors in preposition in the form of replacing, adding or omitting. Most of these errors are indicative of L1 transfer. Even with proficient Arab students in
English, they are likely to commit errors, or at least mistakes, in their use of the English prepositions. Table (1) shows erroneous redundant prepositions in the second place after articles. However, in Table (2) the preposition “of” and “to” share the fifth place with 2.5% of the total redundant terms and 28.9% of the redundant prepositions. Such findings differ from those obtained by Al-hardalow (2001) who ranked ‘in’ and ‘on’ as the highest prepositions in which Yemeni students err. One interpretation of such difference is that Al-hardalow investigated the prepositions of time only, while the present study tackles all the prepositions produced erroneously and also considers them as only one category in which students err. Another interpretation is that Al-hardalow used a translation task that could make the students’ production different from their production in free writing. Similarly, Hago (1998) ranked prepositions in the third place after articles and tenses and verbs. Again, the focus of the current study is different from Hago’s. In general, the possible causes of these errors (Table 4) are: L1 transfer (70%) ignorance of rules (14.5%) and overgeneralization (14.5%). The following examples are taken from the scripts to demonstrate these possible causes:

Tobacco contains of a high rate from nicotine*. (L1 transfer)

It makes us to spend more money*. (Ignorance of rule)

In addition to, Allah told people not to kill themselves*. (Overgeneralization)

In the first example two prepositions were used incorrectly (of, from). Although both of them result from L1 transfer, the second preposition (i.e., from) falls out of the interest of the present study. It falls within the area of lexical relations or lexical replacement where the learner replaced the preposition ‘of’ with ‘from’. As for the first preposition ‘of’, there are four prepositions in Arabic (min, ala, ann and bi) that can be equivalent to ‘of’ depending on the position and the function. The following examples demonstrate the use of these Arabic prepositions as equivalent to English ‘of’:

Ka’sun min almaa. (a glass of water)
Almaa yahtawi ala onsurain. (the water consists of two elements)
Bighadh annadhar an ma qaal. (regardless of what he said)
Ana mughrumun biladab. (I am fond of literature)
However, in the first example taken from the scripts, the learner could have thought of the first two equivalents. It was used to form an equivalent verbal phrase to the Arabic one “yatakwwan min” or “yahtawi ala” that convey the same meaning. These two Arabic phrases consist of a verb + preposition. Obviously, the learner referred to L1 structure and perhaps thought that the verb ‘contain’ in English should be followed by ‘of’ to give the same idiomatic meaning and perform the same phrasal function as in Arabic.

In the second example, the student used the preposition ‘to’ redundantly. This could be either a sign of his/her ignorance of the English rule of infinitive without ‘to’ after the verb ‘make’ or a sign of avoidance of such a rule due to its complexity. In the third example, ‘to’ was also used redundantly after the prepositional phrase ‘in addition’ to indicate a wrong way of rule application (overgeneralization). The student might have been unable to distinguish between the use of ‘in addition’ as a transitional phrase followed by a comma and its use as a major part of a sentence followed by ‘to’ and a noun.

**Redundant Pronouns:** English pronouns represent another area of difficulty for Arab students, but to a lesser degree than articles and prepositions. As Table (1) shows, the participants produced 40 redundant pronouns, with “it” at the top representing 70% of these redundant pronouns (Table 2). L1 transfer was the possible cause of 66.7% of these redundant pronouns (Table 4), while ignorance of L2 rules represents the possible cause of the rest. The following examples show both possible causes:

- Smoking is a bad problem which many countries tried to solve it.* (L1 transfer)

- You should do all things which Allah loves them.* (L1 transfer)

- Smoking I think it is the most dangerous.* (L1 transfer)

- The person who smokes everyday he spends his money to buy a cigarette.* (Ignorance of L2 rules)

The first three examples show the influence of the Arabic structure, where the pronouns “it”, “them” and “it” are repeated as anaphoric references to the subject in each sentence. In the first two examples, the students used
‘it’ and ‘them’ as anaphoric references to ‘problem’ and ‘things’ respectively. These pronouns are termed by Pavesi (quoted in Larsen-Freeman and Long, 1991) as ‘the resumptive pronouns’. The structure is found in Arabic where it is allowed to use the object pronoun to refer to something that has been mentioned early. Here is the translation of the two examples above in correct Arabic:

\[\text{Attadkheen mushkilatun saye’atun wallati haawala katheerun min al buldaan an yahullaha.}\]

(Smoking problem bad which tried many of countries to solve it)*

\[\text{Anta yajibu an ta’mal kull al ashyaa’ allati yuhibbuha Allah}\]

(You should to do all the things which loves them Allah)*

The equivalent translation evidently shows the influence of Arabic on students’ production of the redundant objective pronouns at the end of each sentence.

In the third sentence, the student used a parenthetical clause but did not put any punctuation marks (commas, brackets, or dashes) to distinguish it from the rest of the sentence. So, “it” is redundant since it refers to ‘smoking’, making another subject of the sentence; a structure that is erroneous in English. In Arabic, it is permissible to repeat the subject in the form of anaphoric pronoun, especially after parenthetical clauses. The equivalent Arabic structure to the English structure in the third example is as follows:

\[\text{Attadkheen ana a’atakid annahu al -akhtar.}\]

Smoking I think it is the most dangerous.*

So, the English structure above is a very close matching copy of the Arabic structure, which provides clear evidence of L1 transfer.

Although the fourth example shows similar structure to the third one, neither Arabic nor English permits the use of the redundant pronoun ‘it’. Arabic has four single-sound prefixes known as the ‘present indictors’ that are added to the beginning of the past to indicate the present tense. These sounds are a (for the singular speaker), n (for the plural speakers), t (for the addressee and third feminine) and y (for third masculine).
yunfiqu = he spends

So, there is no need to repeat the pronoun ‘he’ because it is reflected in the prefix ‘Y’. So, such an erroneous redundant use of ‘it’ in the fourth sentence above indicates ignorance of L2 rule.

Redundant Verbs: Verbs also constitute an area of difficulty for the subjects who produced 25 redundant verbs (Table 1) with ‘verb to be’ representing 88% of these redundant verbs. However, 75% of those verbs indicate ignorance of English rules while the rest show L1 transfer (Table 4). Such attribution to these causes is similar to that of Hago (1998) who attributed redundant use of verb to be to faulty comprehension of distinction. Students produced, for example, structures such as (For the sake of contrast, Arabic literal translation is provided under each example):

1. Also people who are smoke*. (Ignorance of rule)
   Aydhan Annas allati takoono Tudakhenu*

2. And it is hurt person healthy*. (Ignorance of rule)
   Wa howa yakoono yadhurru shaks sihhi*

3. And they must be stop smoking*. (L1 transfer)
   Wa hum yajibu an youqifu attadhkeen.

The first two structures contain ‘are’ and ‘is’ as redundant verbs. As these redundant verbs mark the English structure incorrect, the same is applied to Arabic. The verbs ‘takoono’ and ‘yakoono’ in the Arabic translation are also redundant marking the Arabic structures as incorrect, too. So these redundant verbs in English indicate a language system that neither belongs to L2 or to L1. On the other hand, the third sentence indicates L1 transfer, where in Arabic the modal verb ‘yajibu’ should be followed by the article ‘an’ as a functional morpheme used for separating the modal verb from the main verb in the affirmative mode and ‘anla’ in the negative mode. The second verb is known in Arabic as ‘the interpretive infinitive’, which consists of ‘an + the present tense’. So in the third example, the student was influenced by the Arabic structure (yajibu + an) and used ‘to’ after ‘must’.
Redundant Conjunctions: Although conjunctions in English are easy to comprehend, the students produced 22 erroneous redundant conjunctions (Table 1). About 13 of them indicate L1 transfer. For example, one student wrote:

Those who smoke not only harm themselves but also the others who beside them.*

(Uolaaekaa allathina yudakhinoona la yadhurron anfusahum faqat walaakin aydhan ala’khareen allathina bejanibihim).

The second conjunction ‘who’ is used as an equivalent to the second ‘allathina’ in Arabic, although it is acceptable in such a language to omit this ‘allathina’. Apparently, the student have not thought about such an alternative structure and used the second ‘who’ redundantly.

Redundant Nouns: These nouns represent 3.5% of the redundant terms. Nevertheless, all of them indicate the interlanguage system of the learners. For instance:

It is responsible for causing different illnesses*.

In Arabic it also odd to use two synonyms in the same clause.

Redundant Adverbs: They count only for 2.5% of the redundant terms produced by students with two thirds attributed to L1 transfer and one third to interlanguage. The following two examples demonstrate such a conclusion:

1. And the smoker can give up smoking gradually step by step*. (L1 transfer)

2. Since ever Allah is merciful to you*. (ignorance of L2 rules)

The adverb ‘gradually’ in the first example is a clear sign of L1 transfer. In Arabic it is common and acceptable to say:

Al mudakhin yastateea an yatawaqqaf an attadkheen tadrigeyan khutwah khutwah.

On the other hand, the term ‘ever’ is redundant. It could be misplaced if the student have intended to write: ‘Since Allah is Ever Merciful to you’*. Nevertheless, in its current position it is redundant indicating an interlanguage error.
Implications:

In summary, the results of the error analysis and the contrast between Arabic and English lend weight to the research hypothesis that the erroneous redundant terms which students produced in their free writing was mostly due to the interference of L1. The ignorance of L2 rules and the wrong applications of L2 rules contributed lightly to these redundant terms. These results have certain applications and lend support to the weak version of the contrastive hypothesis suggested by Wardhaugh (1970). According to this version, the results of the contrastive analysis can be used not for predicting errors but for predicting difficulties and explaining some of the causes of errors. So, the learners’ errors caused by L1 resulted from faulty translation rather than interference. It is noticed that 96.5% of the redundant terms produced by the students were free functional morphemes. The only category that was free lexical morphemes was the ‘noun’ category. Whether incidentally or meaningfully, the redundant nouns were all attributed to ignorance of L2 rules. That indicates the level of the learners to be an advanced in which the learners utilize their previous knowledge of L1 or the interlanguage as a production strategy (Ellis, 1985). Besides, these redundant terms may reflect a transfer strategy (Tarone, 1978) or a compensatory strategy (Faerch and Kasper, 1984) where the learner literally translates word for word from the native language. Compensatory strategies are those which “non-native speakers utilize in order to maintain a conversation when they have an incomplete knowledge of a SL” (Larsen-Freeman and Long, 1991, 72). The same is applied to writing, especially where L2 learners are put under certain force (the exam) to produce a written discourse.

Although applied to verbal communication, the ‘skeleton and constituent’ model is partially applied to the results of the current study. Developed by Clark and Clark (1977), this model has three programs: planning, articulatory and motor. What is applicable to the current study is the first program (i.e., planning) where Clark and Clark mentioned four steps for language production: 1) communicative goal, 2) discourse plan, 3) sentence plan and 4) constituent plan. These plans are applicable to writing as well. The last plan involves outlining structure for each constituent. Redundant terms are constituents which their structures have been outlined by the participants while writing.

Based on the results, it is recommended that the teachers involved in teaching English to Arab students in general give more attention to these
Redundant terms, especially when correcting students' written assignments. Besides, it is of no harm to the teaching process to point out to the students (using even their L1) the difference between the use of these terms in Arabic and English, especially at the university level and to those who are being prepared to be linguists or English language teachers. Their level of understanding of such difference is high enough to make them able to apply such understanding to L2 acquisition. Then, a future experimental research is suggested to find out the effect of using L1 for explaining the difference between the use of these terms in L1 and L2 on students' performance. Another research is also needed to find out the redundant sentences in students' writing using text analysis. In addition, a research using more advanced level of learners is necessary to complete the picture of redundancy in the English writing of Arab students.
References:


The Coverage of The Iraq-Iran War By British and American newspapers: A comparative content analysis study

Dr. Khalid Alhitti
THE COVERAGE OF THE IRAQ-IRAN WAR BY BRITISH AND AMERICAN NEWSPAPERS: A COMPARATIVE CONTENT ANALYSIS STUDY

Khalid Alhitti
Assistant Professor
College of Communication
University of Sharjah

Abstract

The purpose of this paper was to report a comparative content analysis study of one British and two American newspapers to investigate the space and editorial direction of coverage they allocated to the Iraq–Iran war. Those newspapers were: The New York Times, The Washington Post, and The Times of London.

The overall results of the directional (editorial) analysis indicated that all the three newspapers took neutral positions in their coverage toward the two warring countries when viewed as one cluster. However, when data were separately analyzed about Iran and Iraq, the results revealed that the Times of London treated Iran unfavorably. Similarly, space analysis showed that the Times devoted the lowest percentage of space to the event.

This study confirmed the widely held thesis that western media tend to cover foreign events so long as they relate to realities in the west, especially when western interests or lives are at stake. Moreover, the coverage, as limited as it was, was often tinted by the official governmental position on those same events.
ملخص

تغطية الحرب العراقية الإيرانية من قبل جريدة بريطانية وجريديتين أمريكيتين: دراسة تحليل محتوى مقارنة

هَدف هذه الدراسة هو إجراء تحليل مضمون مقارن لدراسة تغطية صحيفية التايمز البريطانية وصحيفتي نيويورك تايمز والواشنطن بوست الأمريكية للحرب العراقية الإيرانية التي نشبت بين البلدين في عقد الثمانينيات الماضية.

وتركز الدراسة على حجم مساحة التغطية التي خصصتها هذه الصحف للكثير من التفاصيل في افتتاحياتها التي خصصتها للكثير.

إضافة إلى موقعها من البلدين كما تجسد ذلك في افتتاحياتها التي خصصتها للكثير.

أظهرت نتائج الدراسة أن الصحف الثلاث قد تبنت بشكل عام موقفا حيازة من البلدين المتنازعين.

بيد أن البيانات أظهرت أيضا أن هناك اختلافا في التغطية بين إيران والعراق، أن التايمز البريطانية قد عارضت بشيء من السلبية في افتتاحياتها تجاه إيران. وكذا الأمر فيما يتعلق بحجم التغطية التي خصصتها الجريدة للحدث، إذ تبين أنها خصصت له مساحة أقل مما خصصته الصحيفتين الأمريكيةتين.

نتائج الدراسة أكدت أيضا النتائج التي توصل إليها الباحثون سابقًا وهي أن وسائل الإعلام الغربية لا تغطي الأحداث الدولية إلا بقدر علاقة هذه الأحداث بمصالح دولها وإن تلك التغطية على حدوديثها تتأثر كثيرا بالظروف الحكومية الرسمية للدول التي تتنتمي إليها هذه الصحف، رغم ادعاء وسائل الإعلام الغربية أنها تتمتع باستقلالية كاملة عن الحكومات.
In September 1980, fierce fighting had erupted between the two neighboring countries, Iraq and Iran marking the beginning of one of the bloodiest wars in modern history.

The Iraq – Iran war had captured a worldwide attention and received considerable media coverage for obvious geopolitical reasons. But, according to (Ghareeb, 1983), it was one of the least understood conflicts in the United States because of the complications of the Iranian revolution and the American hostages crisis at the time.

Also, understanding Iraq’s position had been no less difficult than understanding Iran’s because the former was one of the most stereotyped and least understood countries in the Middle East.

One of the stranger and alarming aspects of the war, which raged for over eight years, had been the total inability or unwillingness of Moscow and Washington to do anything to stop the fighting. According to (Niazi, 1982), the United States and the ex-Soviet Union, for the first time, had assigned for themselves the role of spectators, whereas in the Arab – Israeli wars, for example, they allowed their clients to fight for a week or two before exerting the economic or political pressure necessary to bring the hostilities to a close.

In fact, the United States did not maintain diplomatic or political relations with either country. Therefore, the United States initially strived for a neutral position; thereby letting both Iraq and Iran slaughter each other with complete indifference so long as the U.S. interests were not threatened. This American formal and peculiar position was typically summarized by a State Department official who explained in 1983: “we don’t give a damn as long as the Iran-Iraq carnage does not affect our allies in the region or alter the balance of power.” (Cited in Shalom 1990, p.3).

However, shortly after the outbreak of the war, Washington, according to Shalom (1990, p.3), demonstrated a tilt towards Iraq by selling Baghdad several Boeing jetliners, removing Iraq from the State Department’s
notorious list of terrorist states and by extending to the government of Saddam Hussein $400 million credit guarantees for U.S. exports to Iraq. Those series of overtures towards Iraq were crowned by the eventual restoration of full diplomatic relations between the two countries in 1984.

This change of heart in U.S. policy vis-a-vis Iraq was expected to be mirrored by the U.S. media in their coverage of the war. This assumption stemmed from the idea that there was a convergence of attitudes between the media and foreign policy actors in the west when it comes to the coverage of foreign events.

For example, Aima (1999, p.1) examined Time magazine’s coverage of Iraq’s President, Saddam Hussein, for two decades and found “significant change in the nature of framing of Saddam along a corresponding change in U.S. foreign policy. It was found that the propaganda model was viable, with the number of mentions of Saddam increasing dramatically over time, a sharp decrease in the number of references praising him, and dramatic increase in the number of negative frames as the U.S. foreign policy turned hostile towards Saddam.”

He further suggested that the relationship of the press and U.S. foreign policy was one of both give and take where the former can act as a source of information and influence on foreign policy makers and the latter can also be a source of deliberate instrumental use to the main actors of foreign policy and, therefore, can be effectively used to achieve foreign policy objectives.

Similarly, Li (1999, p.13) found in a study about press coverage of U.S.–China relations, that the notion that newspapers speak for the national interests of both the United States and China was found to be “present and its impact was not negligibly trivial.”

This study, therefore, attempted to content analyze one British and two American newspapers to investigate the space and editorial direction of coverage they gave to the Iraq – Iran war in light of Washington’s relations with both countries at the time.

**Those newspapers were:**

1. The New York Times (N Y T)
2. The Washington Post (W P)
3. The Times of London (L T)
The newspapers were chosen because of their recognized international image, foreign policy influence on various governments and because all of them had correspondents based in the Middle East.

The reason for choosing British and American newspapers was to investigate the difference of the coverage of war, if any, between those two groups of newspapers in terms of space and direction. This presumed difference stemmed from the proposition that media in general tend to identify themselves with their government’s official position when covering foreign events as suggested earlier.

Therefore, it was thought that the American media might have concentrated on displaying the negative images of Iran as a result of the hostage crisis, which was triggered by Iranian extremists who took 52 American Teheran-based diplomats as hostages for 444 days in 1979.

While, on the other hand, British media might have not concentrated on displaying such negative Iranian images as the American media might have done because British journalists might have not viewed themselves as part of the conflict between Iran and the United States. Furthermore, the tilt of U.S. foreign policy towards Iraq, though it manifested itself later on in the war, might have also been reflected by the U.S. media’s coverage of the war.
STATEMENT OF THE PROBLEM AND OBJECTIVE OF THE STUDY

American and British media, especially elite media, play an increasingly important role in shaping public opinion in both the United Kingdom and the United States and indeed around the world. And since public opinion is, at least theoretically, the basis of policy-making, it is important to study the coverage of this event by three internationally recognized elite newspapers. The objective of the study is to explore the tone of coverage of the Iraq-Iran war in terms of direction (editorial) and space.

THE IMPORTANCE OF THE STUDY

International media have now literally interlocked countries of the world in one true global village in an unprecedented fashion. Therefore, in this age of closeness and universality, the coverage of international news in the western media has now become more important than ever, especially in the Middle East region where vast oil resources, east—west conflict and the Arab-Israeli continuous tension seem to have often overshadowed other important events in the area. Further, the American association with the former Shah of Iran had made the region’s news very important to American and British audiences.

Kaplan (1979, P.241)) stated: “an informed public is essential for a political system based on democratic principles. This encompasses an awareness of domestic affairs and an understanding of international issues in equal proportions.”

This becomes more important as nations have become more interdependent in recent history than ever before. Therefore, what happens in Teheran, Doha, Mogadishu, Kabul and Nouakchott may at some point in the future, if not at the moment, affect the United States and Britain, or indeed the whole world, directly or indirectly? The September 11 2001 events were just a case in a point.

Thus, the media need to be committed to their goals in educating the public about foreign affairs in order to prepare citizenry to evaluate and judge the effectiveness and appropriateness of their government’s policies and actions abroad.
Because the elite American and British newspapers play an important role in reporting what is happening in the world to a substantial and influential number of American, British and, indeed, international audiences, the coverage of such an event of world-wide importance, the Iraq-Iran war, might thus worth a serious study.

PREVIOUS STUDIES

The amount and quality of foreign affairs coverage by the western media has been a matter of continuous research (for example: Galtung and Ruge, 1965; Ostgaard, 1965; Hart, 1966; Smith, 1971; Sande, 1971; Hester, 1971; Hicks and Gordon, 1976; Gerbner and Marvanjy, 1977; Lent, 1977; Semmel, 1977; Larson, 1979 McAnany et.al, 1982; Shoemaker et al., 1985; Eichholz, 1998; Aima, 1999; Li , 1999; Utterback, 1999; Chang et al., 2000 and Kim, 2001.)

The topic has recently attracted scholars, researchers and students, especially those from foreign countries. This emphasis on international news coverage is attributed to the west’s important position in the hierarchy of nations and thus the assumed role played by the media in the decision-making process through which other countries will be affected as well as westerners themselves.

One reason foreign news coverage is important is that elite newspapers are too often the major basis of public policy makers’ perceptions of what life in other countries is really like (Rubin, 1977). Generally speaking, many policy makers especially those in the legislative branch, do not read many dispatches and reports that come in through embassy and intelligence sources but do depend to a large extent on their daily newspapers and television evening news to acquaint themselves with foreign happenings (see also: Kaplan, 1979; Merrill, 1968 and Aima, 1999).

With regard to the direction and amount of coverage of foreign events by western media, many studies have revealed that these media are, in general, overly brief and unbalanced in their reporting of foreign events and their coverage has almost always been crisis-oriented (for example:

Several reasons have been given for the inadequacy of western media coverage of foreign affairs (Kaplan, 1977; Rosenblum, 1977 and Rubin, 1977):

-The emphasis on profit and program ratings, reflective of today’s process in packaging the total news product, is a factor in the decline of foreign news reporting. What counts nowadays in media business, like any other business, are the balance sheets and margins of profit.

-The trend of newspapers being owned by chains. As a result, the success of newspapers is no longer reflected in the editorial excellence as much as it is based on annual earnings.

-The coverage of foreign affairs is neither easy nor cheap. According to conservative estimates, one single correspondent might cost hundreds of thousands of U.S. dollars per year. However, even with the readiness of the media to spend such an amount of money, the correspondent’s expertise and preparedness to handle a given foreign assignment remain questionable, let alone cultural and stereotypical biases of correspondents themselves.

-The influence of a reporter’s political ideology, value system and perceived political interests of the home country can also influence the reporting of foreign news.

-The tendency of many governments around the world to restrict the entry and movements of foreign correspondents inside their respective countries is also a serious problem.

About this point Rosenblum (1977, p. 819) wrote:

It is no lighthearted calypso spoof. The wife of a prominent Jamaican cabinet minister told an American correspondent.

With no trace of mirth: ‘you [reporters] don’t know how you make us suffer with all your lies about communism and violence - - - and if you keep it up, the day will come that you will not be able to come here any more or you will have your throat cut.’
The notion of lack of interest on the part of local audiences was also cited by Kaplan (1977) as another reason for lack of coverage of foreign events by various media. But one has to wonder if this was really true?

Kaplan insisted that this is a safe excuse used by American newspaper managers when “confronted with the irksome if relevant question of why they don’t publish more foreign news?” He cited a 1978 Harris survey, which compare attitudes of reporters, editors, and news directors with those of media consumers on the question of what people look for in their newspapers. The survey demonstrated that media personnel underestimate the public’s interests in foreign news.

Bledsoe et al. (1982, p. 474) content analyzed eight American publications to investigate their coverage of foreign affairs. They found that the focus of coverage was “political” and “episodical.” Their study revealed also that “world images created by publications have a high degree of overlap, and the public was provided with a world image characterized by sharp interstate conflicts with little attempt to tie diverse events together.”

Wilhoit and Weaver (1981, 1983) also content analyzed news items of the two major American wire services to scrutinize the amount and quality of foreign news carried by them. In general, the study concluded that its findings support the claim that the western news agencies do not report much about social and economic developments as compared to political and military events. Thus, the blame of inadequate coverage of foreign news should not be delegated to local newspapers only; rather, wire services are contributors to this problem by determining the agendas of newspapers, especially small ones.

Pratt (1982) conducted a comparative content analysis study of six American news and opinion magazines to find out their depth of African news coverage. The overall results of the study showed that for the magazines, “the foam on the sea often is more important than the sea.” The coverage was not only incomplete but gave the impression that savage, barbaric and grotesque people inhabit Africa.
Lent and Rao (1979) undertook a study to see the coverage of Asian news by several American media (New York Times, Washington Post, Newsweek, and ABC News). In general, the results of the study showed that the four media failed to give the reader/viewer a very broad perspective on Asia.

When we analyze news, we are almost always talking about newsworthiness. The question often asked is: what makes an event newsworthy?

Able (1981) stated that news values differ from one country to another, and even within particular countries. There is no single international accepted standard of news judgment. He noted that the interests and preoccupations of one nation might seem trivial, even foolish, by the standards of others.

Gans (1979) also noted that values in the news are rarely explicit and must be found between the lines. Among other things, Gans mentioned ethnocentrism as one factor that affects news values. He specifically mentioned that ethnocentrism is most explicit in foreign news which judges other countries by the extent to which they live up to or imitate, for example, American practices and values.

Several other scholars attempted to explore the determinants of information flow and news values among nations (for example, Hester 1993, Galtung and Ruge 1965, Peterson 1981 and 1979, Ostgaard 1956, Badii 1980).

In general, those studies produced many theoretical linkages about what events can be classified as news.

Hester (1973), for example, mentioned two factors that might affect the newsworthiness of an event:

Hierarchy of Nations. He believed that nations are at any given time arranged in hierarchies of power or "pecking orders." The perceptions of various nations places in the hierarchy or "pecking order" of national systems determine in part the types of information flow, direction and volume. An inflow of information about a dominant or an aggressive nation may be vital for the survival of a small neighbor which may have to decide whether to prepare itself against attack or attempt to join in alliance with its more powerful neighbor.

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Chang et al. (2000, p. 517) supported the same argument by his findings suggesting that "core nations in the world system often dominate the flow of news and coverage in international communication. If an equation can be used, one core country covered in international news would be equal to two semi-peripheral countries and about seven peripheral nations."

Cultural Affinities and Economic Association. Another determinant of the flow of information might be that of cultural affinity. It was hypothesized that the flow of information between countries sharing the same or similar cultural traits would be greater than between countries having little cultural affinity. It was also hypothesized that where economic relationships were strong more information flow will be observed between nations than when only weak economic relationship prevail.

Galtung and Ruge (1965) listed eight factors, which, they thought, can increase events newsworthiness. Those were:

Frequency. A news event would be more newsworthy if it took place within the same time span as the news organization operates.

unambiguity. The more clear and easy to understand an event was, the more newsworthy it would be.

Meaningful. There had to be cultural proximity and relevance to the audience for an event to be recorded as newsworthy.

Consonance. The event was expected and required to happen. These two conditions might make an event more newsworthy.

Unexpectedness. The more unexpected an event was, the more likely it would be news.

Continuance. The moment a news event was "news," it would continue to remain news for a certain time.

Composition. The media tried to present news in a balanced way, and this would affect the use of a news event.

Regarding the coverage of the Iraq – Iran war, it was believed that during the first days of the war, there was a tendency to ignore the conflict,
portraying it as a Sunni vs. Shii conflict among backward and troublesome Arabs and Muslims (Ghareeb 1983, p. 10).

According to Trudy Rubin, special correspondent of the Christian Science Monitor, lack of interest and access to the battlefronts also had contributed to the distortion and shallowness of coverage of the Iraq-Iran war (cited in Ghareeb 1983, p. 271).

**Hypotheses**

In light of the continuous controversy about western media’s attitudes in general and the American media in particular, towards various parties in the Middle East, four hypotheses were tested in this study as follows:

H1: The New York Times and the Washington Post would express negative attitudes toward both Iran and Iraq in a higher percentage of their war-related statements than would the London Times. The theoretical linkage of this statement stemmed from the fact that the hostility between the U.K. and the two warring countries was not as severe as with the U.S.

H2: The three Newspapers would all take a neutral position vis-à-vis both Iraq and Iran in their overall coverage of the two warring countries. The theoretical linkage of this hypothesis stemmed from the fact that both London and Washington wanted to see no winner in the war.

H3: However, the proportion of neutral statements of the London Times would be higher than that of the Washington Post and the New York Times. This theoretical statement stemmed from the fact that London didn’t see itself directly involved in a hostile relationship with both countries.

H4: The space devoted to the coverage of the war by the London Times would be less than the space devoted by each of the American newspapers. This hypothesis was based on the premise that the U.K. was not as heavily involved in the Middle East affairs, as was the U.S.

**METHOD**

Throughout the world there has grown up an “elite press,” newspapers read by elites of the nation where they function and in other countries where newspaper express an essential part of international elite opinion (Merrill 1968).
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The newspapers selected for purpose of this study were among the world elite press. Those newspapers and other great world dailies, according to Schramm (cited in Merrill 1968, p.27) tend to focus on the big events of the day ... news of national and international scope at the expense of local news, human-interest items, and sensational content, and they try to cover these larger events at greater length than do other newspapers.

This study examined the coverage afforded to the Iraq-Iran war and its consequences by two American and one British newspaper. Emphasis was on what the three papers covered and how they treated the event in reporting and editorializing about it. Comparison and contrast was made in terms of: 1) Space devoted to the war and its related news and information. This was achieved by measuring the column – inches of war news. 2) Space devoted to the rest of international news. 3) Direction of the paper's editorials about the war.

Sentences were used as a coding unit for the analysis of the editorials. Each sentence from the selected editorials was considered individually. First, it was decided whether a given sentence contained a single statement or more than one statement, i.e., whether the sentence was simple or compound. Each simple sentence within a compound statement was counted as one sentence. Then it was judged whether each simple sentence was directly pertinent to the subject of analysis. If it was pertinent, then it was further classified into one of the relevant categories.

The design of the study was divided into two parts. The first concerned the treatment of the event by those papers in terms of space devoted to the war. The second part was related to the papers' editorials about the war in terms of direction. The column-inch was used as a unit of measurement for space. Each and every item of news and information was measured. Maps, charts, and pictures were included in the measurement.

The second part of the study examined the editorial stances of the newspapers regarding the war. That seemed appropriate because the editorial page in a newspaper was widely regarded as the proper place for a publication to express its views and express clear attitudes on issues, which concern the public, newspaper or concerned countries.

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DEFINITION OF TERMS AND CONCEPTS

The following terms and concepts were used for the purpose of measurement of coverage:

Favorable: those items, which presented a positive image or nature of Iranians, Iraqis, or their actions. Explicit support of one side or another or its attitudes, motives or policies were considered to be favorable. For example, expressions such as: "successful plan", "the justified pre-emptive strike" were examples of favorable traits.

Unfavorable: those items, which depicted the actions, the Iranian and Iraqi attitudes or leadership in a negative sense or image. Adjectives like "immoral" were examples of unfavorable traits.

Neutral: those items, which reflected neither favorable nor unfavorable treatment either through balance of content or lack of controversial material.

War news: defined as any item that pertained to the war or its consequences including maps, charts, pictures, caricatures and headlines though they were all not treated separately.

Foreign news: defined as any event happened outside the United States but concerned the relationship of the U.S. with a foreign country.

CODING RELIABILITY

To ensure reliability of this study and to achieve objectivity, the author established a reliability test where equivalent forms of the same test were given to another different independent coder to code the same material under comparable conditions at different times.

One editorial from each newspaper was checked, and the result showed that there was slight difference between the findings of the author and those of the second coder, which suggests that the methodology of this study was sound and therefore the results of the study could be considered valid.

The Chi-square was the statistical tool used in this study and it was deemed appropriate since it enabled the content analyst to determine if any difference among newspapers was real one or happened by chance. Chi-square is, of course, a test of distribution of frequencies and Stempel considered it to be more likely to yield a finding of significant difference.
However, due to the small number of stories, a standard error of the proportion test was applied on the results of space measurement using the number of stories in the denominator.

**SAMPLING**

In accordance with the preceding requirements and the objectives of the study, the sample was selected randomly throughout a period of six weeks, starting from September 22, 1980 until November 2, 1980. Seven labels were created for each newspaper for each week and subsequently two days were randomly withdrawn for each newspaper in each week; thus the total sample days were twelve for each paper. The reason for limiting the distribution of the sample to a six-week span was that the author found, upon his reading through the papers, evidence of a dramatic drop-off in attention to the war at about that time.

As to the sample size, a study by Stempel (1952) had found that increasing size beyond 12 does not really produce marked increase in reliability.

For the purpose of space measurement and comparison of war news with the rest of foreign news, both kinds of news were measured and compared to test the study's hypotheses.

Concerning the directional coverage of the papers' editorials, the author chose the first two editorials of each paper during the six-week period. The reason for that choice was that it was believed that the press usually reveals its opinion and position towards major events or main parties in any given conflict during the very beginning of that event. Since one goal of the study was to investigate the tone of editorials about the warring countries, a decision was made to choose the first two editorials form each newspaper.

The author checked the rest of the editorials and found that they did not introduce important new themes or new positions towards both parties. Speculations on the downfall of Khomeini or Another potential oil crisis were examples of themes introduced by later editorials.
RESULTS

Direction of coverage

Editorials form each newspaper were analyzed for content regarding the Iraq-Iran war. Results in table 1 surprisingly revealed, contrary to hypothesis 1, that the LT had expressed more negative statements about Iraq and Iran than the two American newspapers. 32% of the stories of the LT about Iraq and Iran were negative compared to only 16% and 13% of the WP and the NYT respectively.

The overall results of the direction of the editorials coverage showed that all the three papers were overwhelmingly neutral in their treatment of both Iraq and Iran, thereby supporting H2. Table 1 revealed also that the WP registered the highest percentage of neutral items (80%), followed by the NYT (76%) and the LT (68%), which means that H3 was not supported. However, in terms of number of statements (length of coverage), the LT registered the highest number of neutral statements (86) compared to only (80) and (74) for the WP and the NYT respectively, thereby providing partial support for H3.

The following observations could be made about this table:
-All the newspapers ran editorials, which had more neutral statements than
Favorable and unfavorable statements about both Iraq and Iran.
-All had more unfavorable than favorable.
-All had 10% or less favorable.
-All had 32% or less unfavorable.

When the cells of the two American newspapers were merged (table 2), both the NYT and the WP registered 85% of their editorials statements as favorable/neutral, whereas the LT registered only 74% of its statements as favorable/neutral. But this comparison was, of course, not fair.
If Iraq and Iran were treated separately, significant relationships were found also between some of the classifications of statements of the three newspapers (tables 3, 4 and 5).

Table 3, for example, reflected that the LT had devoted 90% of its statements for neutral positions on Iraq whereas the WP and the NYT devoted only 82% and 70% of their statements respectively for neutral positions thereby supporting H3. However, both the NYT and the WP devoted higher percentages of unfavorable statements on Iraq than did the LT.

Similarly, table 4 reflected a significant chi-square result ($\chi^2=13.2$, $p < .05$) demonstrating that there was real difference between the directions of the newspapers’ editorials about Iran. Again, the dominant category of statements was neutral. However, contrary to H3, the NYT was the leading paper in terms of percentage of neutral statements about Iran. It registered 84% of all its statements about Iran as neutral, whereas The WP registered 78% and the LT 56% though the LT registered the highest number (length of coverage) of neutral statements about Iran in its editorials.

Contrary to what we had expected in H1, however, the LT registered the highest percentage of unfavorable items (39%) toward Iran followed by the WP (20%) and the NYT (14%) respectively.

Space Analysis

The findings of space measurement revealed that both the WP and NYT had devoted more space to the event than the LT, thereby supporting H4. The NYT, with 34% of its foreign news hole devoted to the war, was the leading one among the three papers in terms of space devoted to the event followed by the WP (30%) and the LT (10%) respectively (table 6).

Partly due to the small stories in general, a standard error of the proportion test applied on the results of space measurement which revealed a significant difference between the WP and LT (14.91<20, the difference of 20 percent is greater than the critical value of 14.91) and between the NYT and the LT (15.84<24) and insignificant difference
between the NYT and the WP (17.98>4) in terms of their percentage which this event accounted for as part of the entire foreign news hole.

Thus, H4 was supported by the findings in table 6, where the WP and the NYT devoted more column inches to the event than the LT.

DISCUSSION

An attempt was made to determine the direction of editorials and the amount of coverage given to the Iraq-Iran war by one British and two American newspapers. More specifically, the analysis focused on: 1) attitudes of the American and British newspapers toward Iraq and Iran as revealed in their Editorials and the space devoted to the event as compared to the rest of international news coverage.

The overall results of the directional analysis indicated that all three newspapers took a neutral position in their editorials toward the warring countries, thereby mimicking the official American position summarized by the State Department official's statement referred to in the introduction of this study. That was a very important finding because it showed how much the media in the west, or the whole world indeed, try to converge with official stands or even echo official governmental positions when it comes to the coverage of foreign events.

On this issue Kim (2001, p. 1) found that local journalists take a pragmatic stance when covering foreign events due to business pressures, audience demands and the need to find international news stories with a local angle.

Similarly, Chang and Lee (2001, p.8) found in their study that U.S. involvement and threats to the U.S. were the best two predictors of international events, suggesting that event-driven perspective is more important than the context-driven perspective as world news determinant.

However, when we analyzed the data about Iraq and Iran separately, the results (table3) indicated that the LT had less unfavorable attitudes towards Iraq than the two American newspapers. However, contrary to what we had expected, that the LT expressed negative attitudes toward Iran in higher percentage of its war-related statements than did the two American newspapers (table 4). It was hypothesized that the American newspapers, due to the hostage’s crisis, would express negative attitudes toward Iran in a higher percentage of their war-related statements than would LT.
Possible explanations of those results were:

a) The then strong relationship between Britain and Iraq on one hand and the weak relationship between Iran and the U.K. on the other might have had colored the newspaper’s attitude toward Iran,

b) Iraq compared to Iran enjoyed a better international reputation at the time especially most countries had resented the Iranian revolution as it was depicted as backward and belonging to dark ages,

c) The Iranian government had initiated several new domestic and foreign policies which dramatically changed the face of the highly secular Iranian society and which were considered to be very abnormal in the eyes of western publics, media, and governments.

The seizure of the American Embassy in Teheran had exemplified those policies, and

d) The existence of great numbers of Iranian political dissidents in western capitals and their frequent access to the media might have had colored the newspaper’s attitudes towards Iran.

With regard to space coverage, the study found that the LT devoted the lowest percentage of space to the event. However, we have to consider the fact that the LT had devoted more column-inches for its foreign news in general than did the two American papers.

In general, however, the coverage of the event could not be considered adequate, because, although the war was still going on at the time, it appeared to have been forgotten except for some subsequent reports that appeared in the media after some oil facilities at the Gulf area were threatened. This particular point lent some support to the findings of Li (1999) regarding the crucial role of national interests in the coverage of foreign events by western media.

Regarding the themes, which were frequently repeated in the editorials, there was an emphasis on the following three things:
The conflict might open the door for Soviet intervention in this strategic area,

The conflict might cause an international oil crisis,

The war might endanger the American and western interests in the area.

Unfortunately, this type of emphasis indicated that none of the papers was concerned about the loss of lives and material on both sides. Although the losses of lives from both countries had reached a staggering number (over one million killed or injured) and the financial cost peaked to hundreds of billions of dollars, none of them showed any concern about the level of carnage the war had caused.

This seemed to confirm again the widely-held thesis that western media in general tend to cover foreign events from a western angle or point of view; and only when western interests or lives were at stake.

About this notion of self-interest, an Indian journalist observed that “one of the first question asked by western correspondents covering the April 1978 coup in Afghanistan was, ‘is the new leadership in Kabul pro-west or pro-Soviet?’” according to Narinder K. Aggarwala, little if any attention was given to the impact the change of government would have for the people of Afghanistan (Cited in Kaplan (1979) p.237).

But, according to Carruthers (2000, p. 4), “the degree to which ‘war sells’ depends on whose war it is and the degree to which civilian media ‘consumers’ feel involved therein.” So, it is not surprising to see the media distinguish between ‘our wars’ and ‘other people’s.’ To Carruthers, Other people’s wars, unless they involve ‘us’ too somehow--may not clinch the attention of the distant media, which often assume an absence of interest on their audience’s part in remote conflicts.

Also, if wars drag on for a long time as was the case of the Iraq-Iran war, it is almost always likely that the audience will loose interest shortly after the breakout of the war. In this regard, Carruthers (p.4) suggests that the words of Evelyn Waugh’s press baron, Lord Copper, proprietor of The Beast, still resonate: “the British public has no interest in a war which drags on indecisively. The Beast policy for a war was built on the premise of sharp victories, some conspicuous acts of personal bravery on the Patriot side, and a colorful entry into the capital.”
In light of this philosophy, therefore, it was not surprising at all to watch the dwindling interest of the American and British media in the coverage of the Iraq-Iran war, which was, to them, so remote and ambiguous.

**Table 1**

Classification of statements about Iran and Iraq in the three papers

<table>
<thead>
<tr>
<th></th>
<th>Favorable</th>
<th>Unfavorable</th>
<th>Neutral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYT</td>
<td>10 (10%)</td>
<td>13 (14%)</td>
<td>74 (76%)</td>
<td>97</td>
</tr>
<tr>
<td>WP</td>
<td>4 (04%)</td>
<td>16 (16%)</td>
<td>80 (80%)</td>
<td>100</td>
</tr>
<tr>
<td>LT</td>
<td>7 (06%)</td>
<td>32 (26%)</td>
<td>86 (68%)</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>21 (07%)</td>
<td>61 (19%)</td>
<td>240 (74%)</td>
<td>322</td>
</tr>
</tbody>
</table>

X2 = 9.04, df = 4 , alpha = 0.05, p <0.05
Table 2
Classification of statements about Iraq and Iran in the three papers with the cells of the two American Newspapers Clustered together

<table>
<thead>
<tr>
<th></th>
<th>Unfavorable</th>
<th>favorable/Neutral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP &amp; NYT</td>
<td>29 (15%)</td>
<td>168 (85%)</td>
<td>197</td>
</tr>
<tr>
<td>LT</td>
<td>32 (26%)</td>
<td>93 (74%)</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>61 (19%)</td>
<td>261 (81%)</td>
<td>322</td>
</tr>
</tbody>
</table>

$X^2 = 6.62$, df = 1, $p < 0.05$

Table 3
Classification of statements about Iraq

<table>
<thead>
<tr>
<th></th>
<th>Favorable</th>
<th>Unfavorable</th>
<th>Neutral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYT</td>
<td>9 (17%)</td>
<td>7 (13%)</td>
<td>37 (70%)</td>
<td>53</td>
</tr>
<tr>
<td>WP</td>
<td>3 (6%)</td>
<td>6 (12%)</td>
<td>40 (82%)</td>
<td>49</td>
</tr>
<tr>
<td>LT</td>
<td>3 (6%)</td>
<td>2 (4%)</td>
<td>43 (90%)</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>15 (10%)</td>
<td>15 (10%)</td>
<td>120 (80%)</td>
<td>150</td>
</tr>
</tbody>
</table>

$X^2 = 7.63$, df = 4, $P < 0.05$
### Table 4
Classification of statements about Iran

<table>
<thead>
<tr>
<th></th>
<th>Favorable</th>
<th>Unfavorable</th>
<th>Neutral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYT</td>
<td>1 (2%)</td>
<td>6 (14%)</td>
<td>37 (84%)</td>
<td>44</td>
</tr>
<tr>
<td>WP</td>
<td>1 (2%)</td>
<td>10 (20%)</td>
<td>40 (78%)</td>
<td>51</td>
</tr>
<tr>
<td>LT</td>
<td>4 (5%)</td>
<td>30 (39%)</td>
<td>43 (56%)</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>6 (3%)</td>
<td>46 (27%)</td>
<td>120 (70%)</td>
<td>172</td>
</tr>
</tbody>
</table>

$X^2 = 13.2$, df = 4, $P < 0.05$

### Table 5
Classification of statements about Iran with favorable and Neutral categories merged

<table>
<thead>
<tr>
<th></th>
<th>Negative</th>
<th>favorable/Neutral</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP &amp; NYT</td>
<td>16 (17%)</td>
<td>79 (83%)</td>
<td>95</td>
</tr>
<tr>
<td>LT</td>
<td>30 (39%)</td>
<td>47 (61%)</td>
<td>77</td>
</tr>
</tbody>
</table>

|        | 46 (27%) | 126 (73%)        | 172   |

$X^2 = 11.78$, $\alpha = 0.05$, df = 1, $P < 0.05$
Table 6

Number of new stories of the event and their space as a percentage of international news hole within each paper.

<table>
<thead>
<tr>
<th>Papers Percentage</th>
<th>Number of Stories</th>
<th>Col-inches (event)</th>
<th>Col-inches (foreign news)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYT 34%</td>
<td>51</td>
<td>1709</td>
<td>5109</td>
</tr>
<tr>
<td>WP 30%</td>
<td>57</td>
<td>1905</td>
<td>6355</td>
</tr>
<tr>
<td>LT 10%</td>
<td>48</td>
<td>900</td>
<td>9480</td>
</tr>
</tbody>
</table>

Size of proportion test for WP vs. LT = 14.91 < 20
Size of proportion test for NYT vs. LT = 15.84 < 2
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المراجع

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دراسة الفروق الوظيفية بين نصفي المخ في معالجة المعلومات المعرضة بصرياً / أ.د. السيد أبو شعيشع

ولا بد أن المثيرات بأنواعها خصوصاً مقدار المعلومات التي يحتوي عليها المثير، أو الأداء أو المعالجة المطلوبة من المفخوصين تحدد الزمن العتبي الذي دونه تعالج المعلومات في المستوى الحسي وبعده تعالج المعلومات في مستوى سيمانتيكي أعلى.

أما عن نتيجة المفخوصين الأشخاص، في هذه الدراسة، فقد كانت في نفس الاتجاه الذي تتبناها به، وإن لم تكن الفروق دالة إحصائياً، وذلك لأن عملية تجنب المعلومات عند الأشخاص أقل منها عند الأشخاص بأبو شعيشع، 1990.

لكن لماذا لم يظهر مثل هذا التناقض الكبير الذي يظهر في نتائج العرض البصري التاكيستوسكوبي، في بحوث الأسماع الثنائية؟

الإجابة الجامحة هي أنه في بحوث الأسماع الثنائية التي بنيت تميز نصف المخ الأيسر بصورة دائمة لدى الأيامين هو أن العرض تسلسلي عبر الزمن ويستغرق أكثر من ثانية واحدة بالكامل في أي مدة عرض. ولم يستطيع الباحثون استخدام زمنية عرض أقل من ذلك في تجارب الأسماع الثنائية.

والملحق مزيد من البحوث لتدعم فرض عنصر الزمن العتبي وأختلافه باختلاف نوع المثير أو المعالجة المطلوبة.
المراجعة

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