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Adult Learning During Conference Education Programmes:

How Dual Mode Handouts Aid in Retention/Recall

By

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ABSTRACT

Adult education plays a significant role within the North American educational landscape. It is estimated that 97 million adults annually engage in some form of continuing education activity. A primary education vehicle for many adults is an association sponsored conference programme. Research in the area of conference education is virtually non-existent despite the fact that over 12 million employed adults annually received job training, upgrading and other forms of professional certification through conference education programmes.

A significant trend noted within conference education programmes is the increased use of computer-based presentation software as the primary presentation platform. This situation has resulted in the creation of visually-dominate presentation modalities with little or no attention paid to the need to accommodate a diverse adult learner population.

Research in the area of dual coding theory suggests that a single presentation mode will not be as effective as using a dual coded approach, i.e., verbal and visual. The multimedia literature, which is heavily based on dual coding theory, presents the argument that multiple presentation platforms generate an additive effect on referential processing systems thereby increasing chances of superlative recall. From this theoretical base, it is hypothesised that a dual mode handout used in conjunction with computer-generated visual presentation platform (PowerPoint®) will create a multiple coding effect, thereby further increasing the chances of cognitive outcomes.

To test this hypothesis, attendees at a series of conference education programmes were provided with one of three variations of a handout treatment, two of which were single mode and the third being dual mode. Attendees undertook two open recall tests, one immediately after the education session and one 48 hours later. Findings suggest that there is an additive effect associated with the dual mode handout while the single mode treatments show little or no gain in recall effect. Anecdotal data was compiled to assess the impact of perceived perceptual modality on recall in relationship to the handout treatment used. There is a small amount of evidence to support the concept that perceptual modality may influence cognitive achievement. Further research is needed to verify the results suggested by these findings.

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DEDICATION

To all the teachers who helped turn life

into a true journey of discovery and celebration;

especially those teachers in my family,

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Introduction

In its most generic state, adult education refers to any educational endeavour where adults are the intended audience. At the present time, adult education takes many forms. Programmes at all levels of formal and informal education from basic literacy to post-graduate degree programmes are offered. With the advent of distributed learning via the Internet, the range of adult educational opportunities is almost limitless.

Adult education plays a significant role as a learning option within the North American population. Statistics taken from The condition of education, 2000 (National Centre for Educational Statistics, NCES, 2001, p. 4) indicate that "adults ages 18 and older who participated in adult education increased from 38 % to 50 % between 1991-1999. In 2000, 50 % represented 88.8 million people (NCES, 2001). In Canada, " in 1997, more than 6 million people, or 28% of adults, participated in adult education or training activities" (Statistics Canada, 1999, p. 1). If the 28 % figure is used to determine 2000 levels; adult education participation expressed in terms of population (30.7 million persons) is 8.6 million persons. In combining populations to capture a North American perspective, approximately 97.4 million adults were engaged in some form of adult continuing education learning activity.

One of the least recognised but most significant forms of adult education is that provided by not-for-profit associations. Associations are one of the primary providers of adult education in North America (Falk & Miller, 1997; Sarfati, 1996). The American Society of Association Executives reports that "95 percent of associations...offer

education programmes for members, making that service the single most common association function" (Professional Convention Management Association, PCMA, 1999a, p. 1).

Of the adults cited in the NCES report (2000) 53.6% (11 million) who took work-related courses, took courses provided by businesses or professional associations. In Canada, business and professional associations (including trade associations) provided education for 1.56 million people. In combining the two sets of data, it may be presumed that in 2000 in North America, approximately 12.5 million persons were engaged in adult continuing education programmes sponsored by associations. Peter Shure (1998, p. 4) summarises the role associations play in adult education in his comment "on any given day, there are more adults in [association education] meetings than students on college campuses."

The primary method of delivering association-sponsored adult continuing education is via the association's annual general meeting, conference or convention. The terms convention and conference are often used interchangeably. For the purposes of this discussion, the term conference will be used. Also, in discussing conference education, the focus will be on career-related or professional development programmes.

While strides have been made in the delivery of education at conferences with respect to innovations in speaker training, learning environments etc., overall "the delivery of education at conferences really hasn't changed in 20 years" (Gross, 1998, p. 25). One significant change in conference education over the last several years has been

the introduction of presentation software and with it, the increased use of computer-generated visual representations of content. As an educator who makes approximately 30 conference-based education presentations a year, I became increasingly alarmed at the erosion of conference programmes from well-planned, articulated discussions to a predominantly show and tell format with the help of presentation software. Thanks to the predominance of such programmes as MicroSoft PowerPoint®, there is limited fluidity of discussion; questions are discouraged, and presentations have become monotonously similar during most conference seminars (Stewart, 2001). Even the old conference standby of a sheet or two of typed key discussion points has been replaced by presentation software by-products: virtual reprints of the slide presentation with no adjunct text. Little attention is paid to learning outcomes and more importantly, if learning actually does occur as a result of attending a conference education programmes.

Based on prior research done in the area of dual coding as a reliable trigger for retention and recall as indicators of learning in formal educational environments (Blankenship & Dansereau, 2000; Najjar, 1996; Paivio, 1986, 1991; Riebar, 1996; Shu-Ling, 1998; Simpson, 1995), this study was developed to explore the impact of dual mode (dual coded) handouts as triggers for retention and recall of material when used in conjunction with content delivered via presentation software during conference education programmes.

Research Questions

1. Does the use of a dual modal handout (visual and text) lead to the clarification of the content in such a way that extra recall occurs in comparison with the use of a single modal handout?
2. Does a preferred perceptual modality (e.g. visual, auditory, kinetic) influence recall when comparing the use of dual mode as opposed to a single mode presentation delivery with respect to handout material.

Definitions

Several terms are used throughout this study. The definitions for these terms (a) have been developed specifically with respect to this study given their accepted use within the meetings industry; or (b) have been taken from the literature.

Animation: "Animation refers to the special effects associated with the use of movement within visual displays" (Blankenship & Dansereau, 2000, p. 3).

Conference: "an event used by any organisation to meet and exchange views, convey a message.... Conferences are usually of short duration with specific objectives" (Colby, 1994, p. 222).

Display visual: A display visual is "anything that may appear on the screen to the learner...A visual may, therefore, consist of graphics, pictures, video or animation" (Bhattacharya, Akahori & Kumar, 1999, p. 2). The term is used interchangeably with static visual display (SVD).

Dual Mode Handout: A dual mode handout is one that employs embedded visuals with expository or elaboratory text. The visuals may be exact duplicates of SVDs used in the presentation or they may be visuals that incorporate major graphic elements (illustrations, cartoons etc.) from the relevant SVD. The text will be either expository (offering new information) or elaboratory (presented as a relational support to visual elements). The presentation of information in the dual mode handout follows the presentation sequence of the PowerPoint® presentation. (See Appendix C, p. 101).

Graphic Handout: A graphic handout is one that is visually based. It represents an exact duplicate of the handout by-product generated by PowerPoint® presentation software. A typical page in a graphic handout is comprised of three SVDs per page with a side bar for note-taking. The total number of pages per handout will vary according to the number of SVDs in the original presentation. (See Appendix D, p. 120).

Handout: A print-based set of instructional materials used by a speaker as an adjunct learning aid to presented content.

Learning Style: Learning style refers to the "manner in which students consistently respond to and process information in a learning environment" (Truluck & Courtenay, 1999, p. 223).

Perceptual modality: Perceptual modalities are a class of learning style where the main focus is on information or cognitive processing (Conner, Wright, De Vries, Curry, Zeider, Wilmsmeyer & Forman, 1999; James & Blank, 1993; Wislock, 1993).

Presentation software: For the purpose of this paper, presentation software is defined as any computer software programme that allows for the preparation and production of a

visually based representation of speaker content. The visually based representation is usually presented to an audience by projecting the visual on a projection screen. The software also allows for an exact replication of the visuals in a printed (handout) format.

Referential processing: "Referential processing refers to the activation of the nonverbal system by the verbal stimuli or the verbal system by the nonverbal stimuli...[there is] a crossover of activity from one symbolic system to the other." (Paivio, 1986, p. 69).

Static Visual Display (SVD): Static visual displays are the products of computer-generated presentation software. They are mixed displays that include visual and verbal elements that generate a graphic representation of a concept.

Text Handout: A text handout is one that is textually based. There are no visuals or graphics of any kind within the body of the handout. The textual content presents a complete summary of the presentation content with room for note-taking. All the main teaching points presented in the SVDs are replicated in the text handout as headlines, caption headings; highlighting in bold print or by using underlining or italic script. The text follows the presentation sequence of the SVDs in the visual (e.g. PowerPoint®) presentation. (See Appendix E, p. 132).

Delimitations of the Study

This study examines the impact of handouts used in conjunction with presentation software as an indication of learning in conference education programmes. The measure of learning is limited to retention and recall of information presented in a typical conference education programme. Only the use of presentation software and three

variations of a handout are examined as the teaching strategies used to enhance learning. No effort is made to judge the impact of other teaching strategies.

All the research was conducted in a *natural* environment, that is, in actual conference teaching situations where the researcher had no control over the learning environment other than that normally afforded a conference education speaker: choice of audio visual equipment; room set-up (depending on the conference); and handout materials. No effort was made to create perfect learning environments or to choose or prepare subjects in advance for the research project.

Significance of the Study

The significance of the study rests on the assumption that developing handout material that will enhance learning in conference education settings is an important outcome to both adult learning and adult education at all levels.

Adult education is big business for associations. As earlier indicated, associations are major providers of adult learning in North America and the primary delivery vehicle is an association meeting or conference. Data from a recent meetings industry report (Braley, 2000, p. 26) indicates that "in 1999, 61,800 educational meetings were held, representing 35 % of the associations meetings market." The State of the Industry 2001 report (Welsh, 2001, p. 3) states: "Training and education meetings are the most common type [of meeting] held in all meeting segments, with the association market representing approximately 30% of the market segment."

Statistics from a 1998 survey conducted by the American Society of Association Executives (ASAE) shows that associations annually spend $1.7 billion on education and public information, with $1 in every $4 being directly channelled to educating either membership or the general public (PCMA, 1999a). In terms of small meetings (defined as being attended by less than 150 persons) hosted by associations, the average annual number of such meetings hovers just under 37per association, 37% of which focused on education seminars and training (PCMA, 2000).

Based on Shure's (1998) observations that there are more people in association education that in universities or colleges, it might be assumed that associations dedicate considerable time, effort, and research dollars into developing viable educational programmes that meet the needs of adult students. Unfortunately, this is not the case.

There are a variety of reasons for the lack of emphasis on educational planning. Two seem significant. The organisational structure of most associations is one. Almost all associations are based on an organisational model that is broken into two major components: governance and management. Governance is the province of the elected volunteer board of directors. Management rests in the hands of paid staff who are typically led by a chief executive officer hired for her/his association business management expertise. In most associations, management is further broken down into three constituencies: personnel, finance and programmes (Ernstthal & Jones, 1996). Education falls within the realm of programmes, specifically into the further sub-category of meetings and conferences (Morrow, 1998). The meetings department of an association is overseen by a meetings or special events manager whose expertise is usually in the

area of planning and producing events. Few associations have stand-alone education departments or Directors of Education. Exceptions to the status quo are Education Foundations set up by large national or international associations, thanks to donations and/or endowments, to specifically address the on-going subject-based education needs of members within a specific industry segment. Yet, as Welsh (2001, p. 3) points out when discussing education and training meetings, planning this type of meeting is a significant part of the meeting planner's job function: "On average, each survey respondent personally organised 10 of these meetings in 2000, and nearly one in 10 planned 25 or more."

A second and perhaps the pre-eminent reason why meeting the learning needs of adults in association sponsored education programmes is often ignored lies in the rationale for holding meetings and conferences in the first place. Conferences and education programmes are primary sources of revenue for associations (Mann, 2000; Morrow, 2000).

According to the 2000 Meetings Market Report (Braley, 2000, p. 18), "associations held 11,700 conferences [in 1999] - up 11% - at a cost of $2.1 billion. Conference attendance in 1999 reached 12.3 million, a 5% increase over 1997 figures (Braley, 2000). Welsh (2001) estimated the collective 2000 association meeting budget to be $66.5 billion. While these figures do seem large, they pale in comparison to the amount of money attendees spent to attend these events: "In 1999, association members shelled out $26.7 billion to attend events...Of that number, $14.2 billion was spent on attending conferences and $12.5 billion on association meetings" (Braley, 2000, p. 20).

A quick tally of these numbers indicates that conferences and meetings generate billions of dollars in revenue for associations.

Education meetings do generate incredible revenue for associations. "Any director for a professional association knows that his or her [education] program [sic] need to generate revenue to fund staff salaries in non-revenue producing activities, such as lobbying, maintaining certification programmes, and, promoting the public image of the profession" (Cervero in Mann, 2000, p.2). Welsh (2001, p. 3) supports Cervero's argument with hard dollars and cents. "Training and education meetings...are the least expensive to sponsor.....With an average of 170 attendees and a price tag of under $41,000, these meetings cost only about $237 per person." One might be able to assume that, in light of the staggering revenue numbers as compared to production costs, many associations when thinking about education programmes fall victim to the old adage: *if it ain't broke, don't fix it.*

Conference education programmes are broken. They do require fixing. The increasing domination of presentation software as the primary delivery platform is not reflective of a diverse adult learner population. The apparent lack of additional planning of handout materials by many conference education speakers is also questionable. Uncovering evidence of the value of a particular handout model will add not only to the new but promising field of research in the neglected area of conference education but also to the broader field of adult education. Gaining an understanding of the interplay between what is offered as a presentation strategy in a classroom regardless of its setting; what the learner, regardless of preferred learning orientation, requires for the construction of new

knowledge can only enhance the ability to learn not only the 13 million people who use associations as a primary education provider, but also for all adults involved in continuing education today.

Limitations of the Study

The approach used in this study allowed for neutrality of the test environment in that it accurately reflects the learning situation experienced by adults in a conference education setting without imposing contrived circumstances often found in laboratory settings (Eichelberger, 1989).

While the study was conducted over an 18 month period and in excess of three hundred subjects attended the sessions, the numerical size of the validated test results limited the depth of meaningful statistical analysis undertaken. Initial tests were done in conference classrooms immediately following a presentation. Follow-up tests were done after a 48-hour interval. Subjects who did not attend the second session did not participate in the follow-up test. This excluded group may have added important statistical data as to the value of the various handouts as adjunct learning aids.

Biases

Three biases have been identified with respect to this project. The first deals with researcher bias in that the primary researcher was the presenter at the conference education sessions as well as author of the presentation materials. An attempt was undertaken to have other presenters/speakers participate in the study, but to no avail.

The second bias that has been identified deals with the interactive nature of the session. Previous research has shown that interactivity, that is, the "mutual action between the learner, the learning system and the learning material" (Najjar, 1996, p. 2) tends to positively influence learning outcomes and retention of knowledge in the long term (Bosco, 1986; Fletcher, 1989,1990; in Najjar, 1996). It is being assumed that based on the interactive nature of the session teaching plan, subjects will all display a reasonable level of overall information recall with respect to the subject matter presented.

The third bias deals with the multimedia presentation platform. The literature suggests that any visual modality will have an additive effect on recall rates. Given the preponderance of the visual presentation modality afforded by PowerPoint®, it is presumed that this too, may influence test score differences.

This paper provides the results of my research as to the impact of dual mode handouts in a conference education setting. The paper has been organised to first present any documented research and anecdotal information that was available for study. This has been compiled and presented as a Literature Review (Chapter Two). The research model is presented in Chapter Three; the results of the research in Chapter Four. A discussion of the research results is contained in Chapter Five. Chapter Six presents summarising arguments and suggestions for further research in this area.

Chapter Two

Literature Review

Adult continuing education comprises a significant part of the educational landscape in North America. As indicated earlier, it has been estimated that on an annual basis in excess of 97 million persons are engaged in adult continuing education.

A closer inspection of educational statistics presents some interesting observations. The National Centre for Educational Statistics (2000, p. 1) reported that the choice of education provider changed with age: "At ages 21-22, 50 percent of the population participated in a post secondary...program....At ages 43-44, 7 percent of adults participated in ...programs in post secondary institutions, and 48 percent participated in other types of learning activities." Canadian education tends to echo this statistical trend (Human Resources Development Canada, HRDC, 1997). In the 17-34 cohort, educational institutions accounted for approximately 45 % of adult education. At age 45, educational institutions accounted for 25 % of all educational activity. By age 55, educational institutions provided 23 % of all activity. In both sets of statistics the role of other providers which include trade and professional organisations as sponsors of education programmes tended to increase with the increasing age of the learner (NCES, 2000).

Individuals looking beyond traditional educational institutions for continuing education may be related to the fact that lifelong learning is now intimately tied to the ability to be a part of a productive labour force. " In general, adult learners are not studying to obtain a degree or diploma. They are involved in part-time courses to acquire

specific skills" (HRDC, 1997, p. 2). In 1994, 71% of the adult population engaged in education activities took programmes that were job-related (HRDC, 1997). By 1998, Statistics Canada (1999, p. 2) reported that "three out of four adults participating in an education or training activity...reported doing so for job-related purpose." Based on previously reported population figures, this equates to approximately 6.45 million persons. In the United States, 23.1 % of the adult population (22.18 million) engaged in adult education took career or job-related programmes (NCES, 2001; United States Department of Commerce, USDC, 2001).

"Among the labour force population [in Canada], 29% of the employed ...participated in job-related adult education and training" in 1997 (Statistics Canada, 1999, p. 2). Applying that percentage to the 2000 Canadian labour force of 14.9 million, it represents a population of approximately 4.32 million persons. In the employed population in the United States, the number rises 31.5 % or 22.23 million persons (NCES, 2001).

Perhaps of greatest interest is the statistic regarding that of education provider for career or job-related education. In the United States in 1999, 53.6 % of all the work-related adult education programmes were offered by businesses or professional associations (NCES, 2000). In Canada, the number hovers at approximately 13 % (Statistics Canada, 1999).

In terms of age cohorts within the employed population, the greatest number of persons engaged in career or job-related education in the United States were in the 40-44

Table 1

Participation of Employed Persons, 17 Years Old and Over in Career or Job-related Adult Education Programmes, USA, 1999[1]

Age Cohort	Total Population[2]	Population Participating in Education	Percentage Employed Population
17-24 years	17.815	1.96	20.9
25-29 years	7.952	2.83	35.7
30-34 years	8.788	2.97	33.8
35-39 years	9.850	2.83	28.8
40-44 years	10.737	4.11	38.3
45-49 years	9.014	2.93	32.5
50-54 years	7.255	2.59	35.8
55-59 years	4.654	1.46	31.4
60-64 years	1.873	0.55	29.6

Note. 1. Adapted from Table 355. - Digest of Education Statistics, 2001, p. 387. NCES (2001).

2. Number expressed in millions.

age group, 4.1 million persons representing 38.3 % of the employed adult population (See Table 1, p. 15). In Canada, the dominant age cohorts are similar. The 35-44 cohort has

the greatest participation rates in job-related education at 29 %. "Those aged 25-34 [participated] at a rate of 27%. Those aged 45-54 years had a participation rate of 24%. People between the ages of 25 and 54,...accounted for eight out of every 10 participants in job-related training activities (HRDC, 1997, p. 25).

In reference to gender, in both the United States and Canada, more women tend to participate in adult education activities than men. In the United States, 54.7 % of the population engaged in adult education are women; in job-related programmes, it is 50.6 % (NCES, 2001). In Canada, 53% of adult learners are female: with respect to job-related programmes, women comprise 48.8 % of the population (HRDC, 1997). The high female participation rates tend to reflect the " 'catching-up' phenomenon" (HRDC, 1997, p. 12) that occurs when women re-enter the labour force following a voluntary hiatus to fulfil motherhood roles.

One other interesting trend emerged from a review of census data. The majority of adults engaged in continuing education hold some form of post-secondary credential. Approximately 70 % of employed adults in the United States (NCES, 2001) and "two-thirds of the ....participants in adult education and training [in Canada]" (Human Resources Development Canada, 1994, p. 12) have moved beyond a high school education. The high level of educational attainment may explain, in part, why adult learners tend to look at other than post-secondary institutions for sources of new learning. Many have already *been there, done that*!

A review of the statistics presented above provides an encapsulated portrait of the adult learner in North America. The typical adult learner may be portrayed as an

employed female between the ages of 35 to 49 years. She will hold some form of post-secondary educational credentials, either certificate or degree based. The majority of her adult educational activities will revolve around programmes that are career or job-related. Based on her age cohort, educational institutions will not be her first choice for continuing education programmes. The primary adult education provider will likely be a business or professional association.

An Overview of Conference Education

Associations are primary providers of adult continuing education. As earlier stated, approximately 97 million persons were engaged in adult education in 2000. Of that number approximately 12.5 million persons or 13 % of the employed North American adult learner population engaged in educational activities sponsored by professional, trade and or business associations.

Typically, association sponsored education activities are offered in conjunction with an annual conference, convention, annual general meeting or a combined exposition and conference (Braley, 2000; PCMA, 1999b). In addition, many larger associations offer special sessions on specific topics and offer these sessions in a variety of cities across North America (Braley, 2000). Research in the area of conference education appears to be rare despite the fact that conference programmes, as earlier stated, are a major delivery channel for adult continuing education.

As earlier mentioned little if anything has changed in the past several years with respect to the delivery of conference education programmes. The following discussion

provides an overview of the conference education programme environment at the present time.

Conference Size and Duration

Most conferences are of limited duration, usually 3-5 days. Many events are held mid week. Some will begin or end over a weekend to allow attendees to minimise travel expenditures or to include a mini vacation in the itinerary. The average attendance at a conference will vary from 500 to 20,000 persons. Association conferences typically range from 1000-3000 attendees. Braley (2000) cited average association conference attendance at approximately 1,061 persons. Welsh puts average conference attendance across all sectors at 1,452 (Welsh, 2001).

Length and Number of Sessions

The typical education seminar offered at a conference ranges from 60 to 90 minutes (Sarfati, 1996; Vella, 1998a). A few sessions run from three to six hours in order to meet requirements for continuing education accreditation or certification. Sessions will run concurrently throughout the day with a short intermission between sessions, usually 15-30 minutes. Education programmes may start as early as 7:30 a.m. and end as late as 6:00 p.m., especially if an exposition is a part of the event. At a typical conference, it is possible for a delegate to take anywhere from one to six 90-minute sessions per day.

Physical Environment

Most conferences are held in hotels, conference centres, convention centres, exposition halls or some combination of the aforementioned. Industry statistics show that

60 % of all association conferences and 65 % of all other forms of association meetings are held in downtown hotels (Braley, 2000). Given the need for multipurpose space in most public buildings, the rooms chosen for education sessions are usually not much more than boxes of varying size and shape with varying degrees of lighting, climate and noise control (MacLaurin, 1997). In many instances, meeting space will be of two types: cavernous multipurpose rooms with air-wall separators; or individual rooms of varying size, degree of utility and décor.

Because most rooms must serve as hosts for more than one session, rooms are set to maximise capacity in a single style that will not usually vary during the day. This is done because most meeting facilities (including hotels) administer a surcharge to change seating arrangements during sessions. In addition, the time between sessions within a room is limited: usually between 15-30minutes which does not usually allow for both a set-up change and refreshing of the room. As a result, all the physical elements in the room are affected. Audio visual and other equipment necessary for all sessions in a single room during a day is often set prior to the first session where it fits best as opposed to where it might best enhance the learning environment.

The physical set-up for most conference education programmes is predominantly classroom style: where six foot to eight foot long tables ranging from 18 inches to 30 inches wide and covered in table cloths are set row on row throughout the room. The seating arrangement will vary anywhere from two to four chairs being placed at each table.

It should be noted, that while classroom seating predominates, there have been numerous instances where theatre-style seating with no room for note taking or learner interaction has been used to maximise capacity in both small and larger meeting rooms.

Class Size

There is no hard and fast rule about class size in conference education programmes. Since most meeting planners are constrained by what a facility has to offer for meeting space, the rooms, as earlier mentioned, are usually set to capacity. Attendance may range from a low of 10 to a high of 150-200 persons in a classroom depending on the type of session and whether or not it is held during a conference or as an association meeting. Welsh (2001) set the average attendance for education meetings across all sectors at 170 persons. Braley (2000) puts average association meeting attendance at 90 persons.

Presenter

The person conducting the education session is known by many names: presenter, speaker, facilitator, instructor or educator. The more common industry inside terms are those of "talking head" (Vella, 1998b, p. 21) or "sage on the stage" (Gross, 1998, p. 25). The one constant appears to be that the presenter is an acknowledged content expert. As a result, the presenter may or may not have a solid grounding in basic presentation skills, or more importantly, knowledge of adult education or adult education principles.

Learning Aids

Many conference education managers expect speakers to provide hand out materials. This may range from a one-page sheet to a multiple page, in-depth, interactive,

textually-based workbook. Many conferences do not adhere to a standardised format with respect to handouts. One notable exception demands (a) pre-approval of all handouts; (b) inclusion of specified learning objectives; and (c) clear relationship between what is spoken by the presenter and handout content (Exhibitor Show, 1999).

Many conference meeting planners assume their presenters will use some form of visual support in conjunction with the presentation. In addition, some meeting managers strongly encourage the use of visual aids and many suggest that an exact duplicate of the presentation slides serve as the session handout (personal correspondence, 2000). Unfortunately, the skill of the presenter's ability to design and present good learning aids is not often challenged. Knupfer & McIssac (1992, p. 76) argue that "many people who produce instructional materials with desk-top publishing techniques have little or no training in instructional development."

Learning Outcomes

Few conference seminar programmes encourage the publication of pre-determined learning objectives or outcomes. Usually, testing of knowledge acquisition is done only in Continuing Education Unit (CEU) credit-based programmes. The testing most often takes the form of a series of multiple choice questions answered immediately following the end of the prescribed session. There appears to be little attention paid to diversity in learning styles, time for interaction, application of new knowledge, or prior learning assessment strategies (Shure, 1998; Vella, 1998a).

A Typical Conference Education Experience

Based on the limited information available, a typical association sponsored education meeting might fit the following profile. The session will be 90 minutes in length and held in a downtown hotel or conference centre meeting room. The room will be set to capacity in classroom formation. The presenter will be a content expert who may or may not have expertise in adult learning and/or designing instructional materials. The content will have been prepared using a presentation software programme and delivered as a predominantly visual presentation. Adjunct material in the form of handouts may or may not be provided. If adjunct material is provided, it will probably take the form of a replication of the visual presentation with no explanatory text. Little attention may have been paid to the question of learning needs or outcomes.

With respect to conference education and learning, it appears that little research, outside of industry statistics, has been documented. No one has asked the questions: Does learning happen during or as the result of a conference education programmes given its constrained environment? Does the use of presentation software impact learning during a conference seminar? Do handouts help participants remember information after the conference is over?

Presentation Software

In recent years, presentation software has become the accepted and oft times, the only form of delivery during conferences (Heimes, 1997). Part of the appeal for the increased use of presentation software is its user-friendliness. It allows a presenter to

prepare slides and reproduce copies of the slides as handouts. One education conference manager insists on the use of such handouts for seminars because "adults are visual learners" (personal correspondence, October 1998).

Presentation software also allows a speaker to combine visual elements: colour, photographs/illustrations; animation; video clips and in some cases, sound to individual slides. It may be argued that since the presentation software allows for movement and sound, the end product, the visual, is a multimedia delivery channel.

PowerPoint®

There are several different forms of presentation software available in the marketplace including Aldus Persuasion, Astound, MicroSoft PowerPoint®, ToolBook, and Supercard (Reinhardt, 1999).

The presentation software currently dominating the marketplace is PowerPoint®. By June, 1997, more than 8 million copies of MicroSoft Office 97, each with PowerPoint® 97 had been sold in the USA; largely as a result of the expectation of a more professional looking product by people attending presentations of all kinds (Heimes, 1997).

PowerPoint® is a part of MicroSoft's Office software suite. Its typical use is for the development and presentation of a series of slides or display screens "to organise, illustrate, and present your ideas and information with real impact" (http://www.microsoft.com/office/applications). In their zeal to create more professional looking presentations, conference speakers have embraced the software to the point

where the quality of dialogue and interaction have been sacrificed. Mason & Hlynka (1998, p. 45) state:

> PowerPoint has...become the new standard for conference handouts.... This year, there were a handful of real papers, but by far the most common handout was a computer-generated PowerPoint page consisting of some dozen or so boxes called slides. PowerPoint, it seems, now controls the standard for a conference handout....What is gained in the use of PowerPoint is power, control over the audience through quality transparencies and an unwavering sequenced flow. But something has been lost. It is no longer a bargain to have key themes presented as naked text at the cost of traditional rich text...A conference paper summarised within a PowerPoint handout form cannot be elegant.

While Mason and Hlynka, as academics, are arguing for the return to a more traditional approach for the presentation of research based papers, they do raise an interesting point. PowerPoint®, as a delivery channel, does exert control over the audience. Presentation participants are captivated by the on-screen display. However, there may be a price to pay. Mason & Hlynka (1998, p. 48) argue that the use of the software's dominant visual base "focuses attention on irrelevant technical dimensions...and [audience members] are diverted from the content at hand". This concept is validated by research done by Blankenship & Dansereau (2000) especially in situations where animation features are used extensively. Reinhardt (1999) indicated that some post-secondary students found PowerPoint® presentations helped them pay attention to lectures. Atkins-Sayre, Hopkins, Mohundro, & Sayre (1998, p. 3) cite a study by Daniels that indicates: "the visual attraction for the students as the primary benefit of using desktop presentation programmes [PowerPoint®] citing the colour, animation and graphics as enhancing lecture materials."

Figure 1. The Power of PowerPoint®

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Referencing the studies mentioned above, it appears that PowerPoint® does have an affective value. The audience is engaged, but is it engaged in learning? The perception of students in the Atkin-Sayre et al. (1998) study was that PowerPoint® enhanced

learning. However, no testing was done to verify cognitive responses. Daniels (in Atkin-Sayre et al., 1998, p. 3) reported "no significant difference in students' cognitive performance between those classes which used PowerPoint® and those which did not."

Based on research conducted in the area of text-based visuals, it could be argued that PowerPoint®, as a visual representation of content, does enhance learning. However, a key difference lies in the placement of the visuals. PowerPoint® visuals are presented on a viewing screen as a stand-alone element. Most research on visuals tends to look at them in relation to their placement in text-based content or as an adjunct to text. To date there is little research evidence that indicates the visual engagement offered by PowerPoint® (or any other presentation software) fosters learning (Atkin-Sayre et al., 1998; Blankenship & Dansereau, 2000; Frear & Hirschbuhl, 1999). One study, conducted in 1986 reported that "presentations that use visual support [PowerPoint®] are 43% more persuasive than ones that don't" (Hanke, 1998, p. 45). The setting for the study was a marketing situation where university students were presented with material to encourage them to purchase additional educational options while attending school.

The lack of research as to the value of presentation software as a learning aid in general coupled with the paucity of research in conference education settings leads back to a question presented earlier in this paper: Does the predominantly visual representation of concepts and content in conference education settings impact learning?

Dual Coding Theory

The discussion centring on the use of presentation software as a delivery channel presents a natural segue into the topic of dual coding theory. The primary tenet of dual coding theory is that learners process information using two distinct but intimately related modalities, visual and verbal (Gerlič & Jaušovec, 1999; Rieber, 1996; Paivio, 1986; 1991; Paivio & Brigss, 1981; Simpson, 1995).

> Dual coding predicts three separate levels of processing within and between the visual and verbal systems; representational, associative, and referential. Representational structures (either visual or verbal) are formed depending on the nature of the incoming information (i.e., visual and verbal information from the environment triggers the visual and verbal systems respectively). Associative processing leads to connections constructed within either the visual or verbal systems, whereas referential processing leads to connections made between the visual and verbal systems. Referential processing is particularly important because dual coding theory predicts that learning will be enhanced with information is encoded in both systems (Rieber, 1996, p. 606).

The use of presentation software as a visual delivery channel in combination with the presenter's verbal content effectively creates a dual delivery system. The replication of content material in the form of a handout represents an additional delivery system.

Dual coding theory focuses on two dominant stimuli, the verbal and the visual. Verbal coding is the standard method of presentation used within the educational system (Rieber, 1996; Shu-Ling, 1998). Verbal coding takes two forms: aural and written (Najjar, 1996; Simpson, 1995). For the purposes of this paper, the focus will be on written or text-based forms.

The literature regarding verbal (text-based) coding is voluminous. A basic finding within the literature is that text presented on its own as a stimulus does not enhance

learning as much as when used in combination with other forms of presentation. A significant portion of the research regarding the influence of text on learning has been done within the context of associated pairs; textbook design and within controlled experimental environments. With the advent of computers, computer-based training, and multimedia approaches to learning, a significant body of research has developed in the area of verbal versus visual stimuli in computer-based education (Rieber, 1996; Shu-Ling, 1998). The findings of the majority of this literature to date have been as follows:

a) better comprehension is achieved with the use of text/still graphics as opposed to text alone or text-animated graphics (Shu-Ling, 1998);

b) "visual-textual modality [is] related to better recall than text-only modality even when the visual-textual modality presented summarised information and the textual-only modality provided either full text or full text with summaries" (Mayer et al.. in Velyo & Quirk, 2000);

c) near mastery of a subject area is possible when elaboratory text is accompanied by visual reinforcement as opposed to verbal reinforcement alone (Rieber, 1996);

d) cognitive achievement is greater when visual and verbal stimuli are used in a complementary manner (Frear & Hirschbuhl, 1999; Gerlič & Jaušovec, 1999; Marsh, 1999; McLoughlan, 1997; Najjar, 1996).

Given these findings, it may be presumed that the basic premise of Paivio's dual coding theory is valid regardless of the type of modality used to present information.

The Impact of Visuals on Learning

The majority of the research revolving around dual coding theory and multimedia learning has a strong focus on the visual mode. "The visual has become a dominant and defining element in our literacy and culture" (Woodward, 1989, p. 104). The majority of past research focused on the use of text-based visuals; photographs, illustrations, graphics etc. as ways to enhance learning from text is widely acknowledged.

There is no clear consensus on the impact of visuals on learning. Woodward (1993) tends to contradict prevailing opinion regarding the value of illustrations in texts as either motivational or learning tools. "Do illustrations motivate students to learn? No evidence from research seems to exist that suggest illustrations motivate students to learn" (p. 121). "Rather, studies have suggested that many illustrations fail to enhance learning and, in fact, may consume a large portion of limited space that could be better devoted to content" (p. 132).

Chall & Squire (1991, p. 128) offer support for Woodward's argument. They comment that "illustration can either facilitate or hinder comprehension, depending on the nature of the visual, its location, the level of the reading material, and the extent to which it is designed to direct readers to the instructional focus rather than detract from it."

Much of the literature appears to support the use of carefully selected, carefully placed photographs used in moderation in expository texts (Brody, 1982; Lester & Cheek, 1998; Rakes, Rakes, & Smith, 1995; Woodward, 1989). The prevailing assumption is that visuals (photographs/illustrations) aid in retention and recall of

information; help convey visual images of abstract concepts; call attention to important content; present the information from an opposing or different view point (Lester & Cheek, 1998); "activate prior knowledge" (p. 288) and make reading more interesting. Mayer (1989) notes that photographs and illustrations in general act as the stimulus for three cognitive processes that aid comprehension through reading. These are: drawing attention to critical information; helping the student to create internal connections between the ideas in the textual content; and creating connections between the ideas in the text and the student's existing knowledge repertoire.

As shown above much of the research on visuals as learning tools has been in conjunction with textual content. Research in the use of computer-generated visuals is confined mainly to the field of computer-based training. As previously mentioned, research about visuals as learning aids created specifically from presentation software is limited (Atkins-Sayre et al., 1998).

Presentation Software Computer-Generated Visuals

The more common nomenclature of visual or slide is used in reference to static visual displays (SVDs), the product of computer-generated presentation software programmes. Bhattacharya, Akahori and Kumar (1999) prefer to use the term display visual. The function of a SVD

> is to provide a non-text based representation of some object, process, concept or skill to be learned, although they are often accompanied by text. They do not move through space or time and vary in the amount of detail and realism they contain, from a simple line drawing created with a draw/paint programmes to a photograph (Szabo, 1997, p. 2).

Animation, one of the *bells and whistles* in presentation software takes many forms from frame transition sequences to the ability to highlight or fade elements. The elements affected by animation may be either graphically or textually based. Animation as a constructive learning adjunct in SVDs is widely debated. Blankenship & Dansereau (2000), Hartley, (1999), Najjar (1996), Rieber (1990; 1996), and Shu-Ling (1998) present arguments both for and against the use of animation. It appears that if used judiciously, animation may support learning. On the other hand, excess use of animation may distract the learner and cause the loss of focus/concentration.

Attributes of presentation software computer-generated visuals.

Computer-generated visuals, like their textbook-based counterparts are made up of a variety of elements that may include words, lines, drawings, numbers, symbols, photographs. Bhattacharya et al. (1999, p. 4) indicate that the impact of a display visual is directly related to how its attributes, "unity, colour, shape, balance" are used. Unity refers to how the various elements on the slide relate to one another. Words, drawings, symbols should support one another and act as reinforcements to each other and the overall presentation.

Colour brings another dimension to a visual. Hartley (1996, p. 89) states that the use of colour in an illustration or visual serves one of two purposes; "to functionally aid the instruction, or for aesthetic and motivational reasons." Interestingly enough, on the issue of motivation, Hartley (1996) makes the point that in general, the older, the more educated the student, the less the need for colour and visuals as motivational triggers. One known study (1986) states that comprehension and retention improved dramatically

when colour slides were used (Hanke, 1998). Bhattacharya et al. (1999) support the judicious use of colour in computer-generated visuals with an emphasis on those colours that reduce eyestrain and fatigue.

When speaking of shape in reference to computer-generated visuals, the reference is usually to the page orientation, i.e. portrait or landscape. Since western cultures normally read from left to right across a page, the landscape orientation is preferred. The format allows for an area that is approximately 1 1/3 times wide as it is long.

The attribute of balance refers to the percentage of content on the slide (text, graphics etc.) as opposed to blank or white space (Knapfer & McIssac, 1992). A general guideline is that a minimum of 25% white space should be allowed. The issue of composition is also important when speaking of balance. When a combination of elements is used, e.g., text, graphics, colour etc., the rule of thirds should be employed: that is, each major element (graphic, text, white space) should comprise 1/3 of the usable space on the slide. The usable space is the space below the title (headline) line on a slide.

In order to be effective as learning aids, the design and production of SVDs should be deliberately done with careful attention being paid to the interrelationship of all visual and verbal elements. Each SVD created must be relevant to and easily associated with the subject matter being presented (Atkins-Sayre et al. 1998; Hartley, 1999; Howles & Pettengill, 1993).

In summary; given their ability to create a sense of motion through animation; to combine elements such as text, graphics and colour; to attract the attention of the learner;

and to enhance understanding of verbal concepts; static visual displays are examples of a single entity providing information in a variety of delivery channels.

Multimedia Approaches to Learning

"Multimedia is the use of text, graphics, animation, pictures, video and sound to present information" (Najjar, 1996, p. 1). It is interesting to note that there is a presumption that multimedia helps people learn; a presumption based not on scientific fact, but on the supposition that "people enjoy multimedia, prefer multimedia learning materials and, believe that multimedia helps them learn" (Najjar, 1996, p. 1). The Atkins-Sayre et al. (1998) study presented earlier in this paper tend to support Najjar's observations.

Much of the current research done in the area of visuals as learning tools has been rolled into the much broader area of computer-based training and the use of interactive software to encourage and stimulate learning. Again, little has been done in the area of presentation software visuals as a learning tool despite their multimedia orientation. With the rising popularity of computer-based learning and more recently e-learning, many researchers are now focusing on the impact of all forms of multimedia delivery on learning outcomes.

Najjar (1996) argues that multimedia helps learning when it is combined with another learning channel. Since most adults process information in verbal (texts/words) and non-verbal (visual) forms, the existence of visuals alone does little to improve learning of verbal forms. He contends that

> The illustration must show the information that is presented in the text and the learner must be able to avoid getting distracted by the non verbal media. It appears that supportive illustrations help explain the textual material and allows learners to build connections between the verbal text) and the non-verbal (illustrations) information (p. 6).

Najjar's position appears to support dual coding theory as being foundational to using multimedia as an effective vehicle to enhance learning.

George Marsh II (1999, p. 3) found that "students who get verbal and graphical/visual information achieve more than students who receive only verbal presentation." Marsh tends to support Najjar's (1996) argument for the need for multi-channel (multimedia) presentation in order to maximise learning. Marsh's argument in turn lends support to a dual coding approach.

McLoughlan (1997) also supports the argument that two modes of processing are better than a single channel. Through her research in the area of visual thinking, she has come to the conclusion that verbal and pictorial (or non-verbal) modes are better than verbal mode alone. She argues that visual forms of representation are legitimate forms of learning and expression, that when combined with language [text] as further means of expression, afford students the opportunity to maximise the learning outcome.

Rieber's extensive studies in the area of computer-based simulations presents a strong argument for dual coding theory being foundational to multimedia and other interactive approaches to learning. He suggests that the additive effects of visual feedback coupled with verbal elaboration tend to optimise learning. In one study (1996, p. 614) he states: "subjects given both visual feedback and elaboration reached near mastery on the post test (average score of 93.5%), outperforming all other subjects."

Gerlič & Jaušovec (1999) and Frear & Hirschbuhl (1999) also support Rieber's argument that multimedia approaches based on dual coding theory enhance cognitive capabilities. Gerlič & Jaušovec (1999, p. 10) following up on work done by Rieber, found that verbal presentation alone [text] only supports verbal processing; whereas dual approaches "trigger visualization [sic] strategies such as mental imagery, which is crucial to many kinds of problem solving, creativity and discovery." Frear & Hirschbuhl (1999) also found that multimedia applications had a significant effect on both achievement and problem-solving skills.

In summary, then, it may be stated that research to date supports the use of multimedia approaches based on dual coding theory as effective enhancements to learning. However, it is not sufficient to simply elaborate visuals or to use computer-generated techniques such as animation as visual attractions. In using multimedia as a content delivery focus, both visual and verbal approaches should be utilised.

Handouts

Prior to the advent of multimedia and computer-based presentation software programmes a typical conference education seminar might take the following form. A content expert presented his/her material lecture style to an audience seated classroom or theatre style in a room. Overhead transparencies, either typed or hand written, provided visual support. Many speakers provided a text-based handout of salient teaching points as adjunct to their presentation. The material was usually comprised of a page or two of photocopied notes or headings. Sometimes it would be distributed during the session to

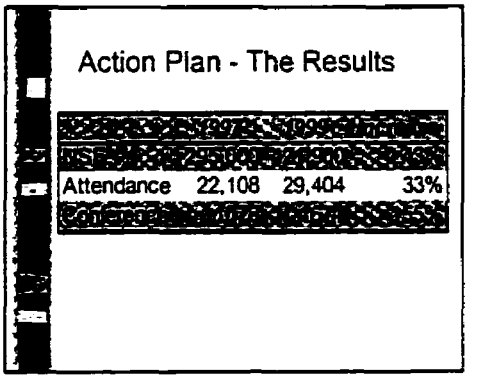
allow minimal note-taking. Most often, however, it was distributed at the end of the session.

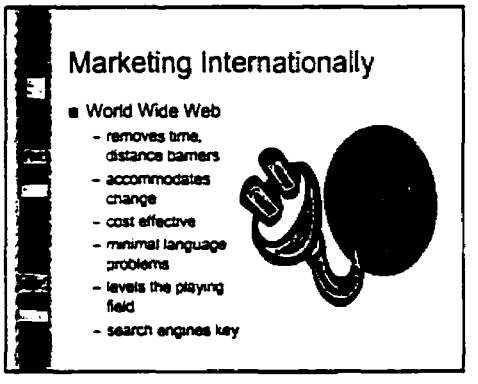
Advancing technology irrevocably changed the way in which speakers present information at conferences (Mason & Hlynka, 1998; Stewart, 2001). Computer-based presentation software programmes effectively enabled the creation of multimedia-based static visual displays (SVDs). This brought the attributes of colour, balance, style, animation, a sense of professionalism and the wow factor to even the most tedious topics (Atkins-Sayre et al., 1998; Blankenship & Dansereau, 2000; Heimes, 1997; Howles & Pettengill, 1993; Mason & Hlynka, 1998). The software programmes also allows the presenter to replicate multimedia SVDs in a one dimensional, visual format for use as adjunct material, i.e. a handout (See Figure 2, p. 37).

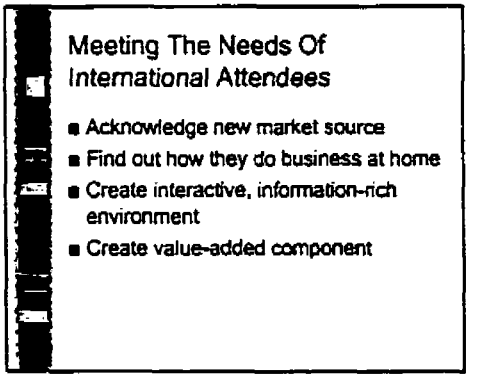
Handouts, as adjunct learning aids, have been a part of the educational landscape for a long time. Surprisingly, however, little research has been focused on their effectiveness as learning tools. Only one research-based study was found during an examination of educational databases that focused on handouts in any capacity. The purpose of the study was to examine teacher attitudes towards instructional design processes using handouts as a base. Study author, Hartman (1991, p. 9), provided a concrete rationale for the use of handouts as adjunct learning aids. She states

> Handouts vary in purpose, length, and appearance. The different functions include:
>
> a. providing an overview or outline of content.
> b. illustrating a particular point.
> c. helping students learn by providing a visual representation of information to be learned (which one can return to unlike a beautiful illustration on an erased blackboard).

Figure 2. Example of a PowerPoint Generated Handout







d. supplementing oral instruction with a visual representation, thus providing information in different sensory modalities; or supplementing material presented in written words with images of them.
e. providing a worksheet for learning activities.
f. providing content with some detail.
g. helping students organize [sic] information.
h. helping students review for tests.
i.

Any information that is available on handouts is found in instructional design and presentation skills literature. In their article, "Designing Printed Instructional Materials," Burbank and Pett (1986) view handouts as important components of the communication interchange between instructor and student. They argue that handouts "must attract and hold attention and lead the learner through the information in a way that facilitates learning" (Burbank & Pett, 1986, p. 5). The authors maintain that handouts will accomplish their task if design factors of content, typography, white space, placement of illustrations, etc., are properly planned and instituted.

Simmons (1999) also considers handouts as valuable communication tools. He considers them as extenders of the presented message as well as triggers for long term recall. His focus rests mainly on design considerations as well; using graphics whenever possible; minimising verbal content; allowing adequate white space; applying the rules of balance and unity.

Noted trainer and speaker, David Peoples (1992), argues that when used properly handouts enhance audience interest and attention. He also states that handouts may be a serious distraction, to the point of losing an audience if not handled well. Peoples focuses on the use of handouts generated by presentation software. He indicates that to maintain

audience interest and attention, handout materials should not be distributed as a complete package. When a presenter uses software generated handouts, the entire presentation is contained within the handout. Effectively, there is no need for the audience to stay focused on the speaker once they have a copy of the slide presentation in hand.

It appears that all the essential rules of design that apply to the development of effective static visual displays are necessary in the design and production of effective handout materials. Hartman's (1991) study focused on design elements in the preparation of handouts. However, her study is of value for a different reason. She understands that the value of handouts is intrinsically tied to "the immediate and long-term purpose of the handouts, students' individual differences, prior knowledge, and levels of development " (Hartman, 1991, p. 8).

Burbank and Pett (1986) acknowledge the need for proper planning to optimise the use of handouts over the long-term as adjunct learning aids for a very specific audience - adult learners. They argue that a solid grounding in adult learning principles is fundamental to being able to design effective learning materials that will enhance learning. While they do not publicly subscribe to dual coding as a method of enhancing learning, the design format they present appears to be based on a dual coding approach. They advocate the use of instructional text that is clear, concise, concrete and familiar to the learner in concert with the judicious use of relevant, focused illustrations or graphics that are an integral part of the message being delivered.

Using more than a single mode of delivery to communicate a message in a handout, whether visually or verbally, is, in effect, employing a multimedia approach (Velayo & Quirk, 2000). As was illustrated earlier, a multimedia approach to learning appears to have grown out of dual coding theory. At the very least, research in the area of multimedia supports dual coding theory. It does not take much of a leap, therefore, to bridge the gap and bring handouts into a discussion about multimedia approaches and dual coding theory.

As was indicated in the Introduction of this thesis, I have become increasingly alarmed at the increased use of visually-based handouts as the only support for conference education content presented in a predominantly visual format. A review of relevant research tends to support the concept that when used in isolation, the impact of visual and verbal messages is not as significant as when used in tandem. It stands to reason that in using a dual coded approach in developing and presenting handout materials, the possibility for enhancing learning is increased. If handout material is designed with deliberate attention paid to the guidelines for preparing effective instructional materials, if the use of relevant visuals is carefully planned and incorporated into the overall handout design, and if elaborative text is used to relate to and reinforce the visual message, the referential effects consistent with dual coding theory should be noticeable in cognitive outcomes.

Modalities

Dual coding theory presumes that "words and pictures activate mental processing in different ways "(Shu-Ling, 1998, p. 2). How learners process information, in its turn, tends to naturally lean towards a discussion about learning styles or modalities.

Perceptual modalities are biologically based systems through which the body initially takes in information from the learning environment (Conner, Wright, DeVries, Curry, Zeider, Wilmsmeyer & Forman, 1999; Huber, 1993; James & Galbraith; Reiff, 1992; Truluck & Courtenay, 1999). Perceptual modalities are usually recognised as being one of four types: verbal, visual, aural or kinesthetic (Zhang & RiCharde, 1997). James and Galbraith (1985) expanded the three basic modalities to include a series of others: print (reading and writing); interactive (group discussion); haptic (actual-hands on); and olfactory (smell). For the purposes of this paper, the discussion will centre on the three basic categories, visual; aural (auditory) and kinesthetic.

Each learner has a different way of taking in and processing information from the environment (Boulemetis & Sabula, 1996). A review of the literature shows that individual learners often find and focus on one particular (dominant) modality as the best way for that individual to take in and process information (Boulemetis & Sabula, 1996; Huber, 1993; McCurry, 1996; Reiff, 1992; Simpson, 1997; Wislock, 1993; Zhang & RiCharde, 1997). Other modalities are also employed to process information and are termed secondary modalities. Barbe and Milone (in Reiff, 1992, p. 17) concluded that in any given classroom the student body could be broken down by modality as follows: "25-30 % visual, 25-30 % auditory [aural], 15 % tactile/kinesthetic, and 25-30 % with mixed

modalities." A deficit in the literature is that modality studies tend to focus on the K-12 learning; research in the area of adult learning and perceptual modalities is limited (Boulemetis & Sabula, 1996; Truluck & Courtenay, 1999; Whitlock, 1993; Zhang & RiCharde, 1997)

While limited, the research regarding adult learners and perceptual modalities does present some interesting findings. As the learner matures, s/he tends to move away from the use of a singular dominant modality to a more integrated approach where two modalities (mixed modalities) may be used a majority of the time (Boulmetis & Sabula, 1996; Reiff, 1992; Simpson, 1997; Truluck & Courtenay, 1999). Studies have indicated that the use of a secondary modality may supersede that of the dominant modality depending on the specific learning situation (Boulmetis & Sabula, 1996; Reiff, 1992; Simpson, 1995; Wislock, 1993; Zhang & RiCharde, 1997). Simpson (1995, p. 93) further argues that adults are

> adept at processing information in each modality to a degree when called upon to do so. This seems to suggest that adults have an acquired ability to process in each modality, but they tend to process information in a combination of internal modalities as circumstances dictate.

How material is presented may have some influence on which modality is used (Boulmetis & Sabula, 1996; Cambiano, De Vore & Denny, 2000; McCurry, 1996; Reiff, 1992; Simpson, 1997; Velayo & Quirk, 2000). Perception is not reality for most adult learners; that is, the way in which the learner thinks s/he learns does not necessarily correlate to the way in which information is actually processed (Boulmetis & Sabula, 1996; Huber, 1993; Najjar, 1996).

The issue of the perception of how adults learn is of considerable importance in the area of conference education. The dominant presentation modality is visually based (Velayo & Quirk, 2000) as evidenced by the preponderance of PowerPoint®-led presentations during conferences (Mason &Hlynka, 1998; Stewart, 2001). Based on the research evidence that is available, the use of a single mode of information delivery may impede the student's ability to not only take in new information, but to process, store and retrieve same (Boulmetis & Sabula, 1996; McCurry, 1996; Paivio, 1986; Reiff, 1992; Simpson 1997; Whitlock, 1993). The predominant use of a visually-based presentation modality also tends to contradict the literature that indicates that as a person matures, more modalities are used to acquire and process information. The typical adult learner, as profiled earlier in this paper, is near mid-life. Truluck and Courtenay (1999, p. 234) argue "educational programmes designed for older adults should incorporate all the different modes of learning and not focus on one particular style."

Conclusion

Professional development continuing education delivered at conferences is the primary method through which adults seek to quench their thirst for knowledge. Education delivery at conferences is seriously flawed. The argument is presented that one of the more serious ramifications of the use of presentation software has been the move to an exclusively visually-based handout as an adjunct to programmes content. The handouts, by-products of presentation software programmes, are generated as one-dimensional, static replicas of the visual presentation with limited room for note-taking

and no elaboratory text. As a result, the combination of a predominantly visual presentation mode coupled with a visual handout effectively creates a single presentation mode delivery system that does not accommodate the needs of individual learners in many conference education programmes.

Paivio's dual coding theory argues against the use of a single presentation mode delivery system. The dual coding hypothesis rests on the assumption that learners process information using both verbal (written) and visual modalities. A review of the literature indicated that in isolation, the visual and verbal modalities are not as effective as presentation modes as when they are used in tandem. Research studies tend to support the hypothesis that dual coding is effective in increasing the rate of retention and recall, and in effect, enhancing the ability to learn. Research in the area of multimedia learning tends to support Paivio's dual coding theory; that is, using more than one modality optimises the ability to learn. A significant finding within the multimedia research was that one of the modalities used should be verbally based.

The discussion surrounding visual and verbal presentation modalities and how they may influence learning leads to learning styles and how adults learn. The research literature indicates that all learners develop a preferred way of acquiring, processing, and retrieving information. Presentation modalities may affect how an adult takes in and processes information.

In the field of conference education, in order to provide meaningful learning outcomes that facilitate the retention of information and encourage the construction of new knowledge, presenters need to seriously consider moving from single modality

(static visual display) format to one that employs mixed modalities. Any and all presentations, whether enhanced by PowerPoint® or some other software programme, should be accompanied by a mixed modality handout that, as the literature suggests, may actively trigger referential processing. Learning may be enhanced with information that is dually coded and reinforced.

This research study was developed to explore the impact of presentation modalities on learning outcomes, specifically retention and recall within conference education programmes. The conceptual and research models and the methodology developed for the project are presented in Chapter Three.

Chapter Three

Research Methods

The Conceptual Model

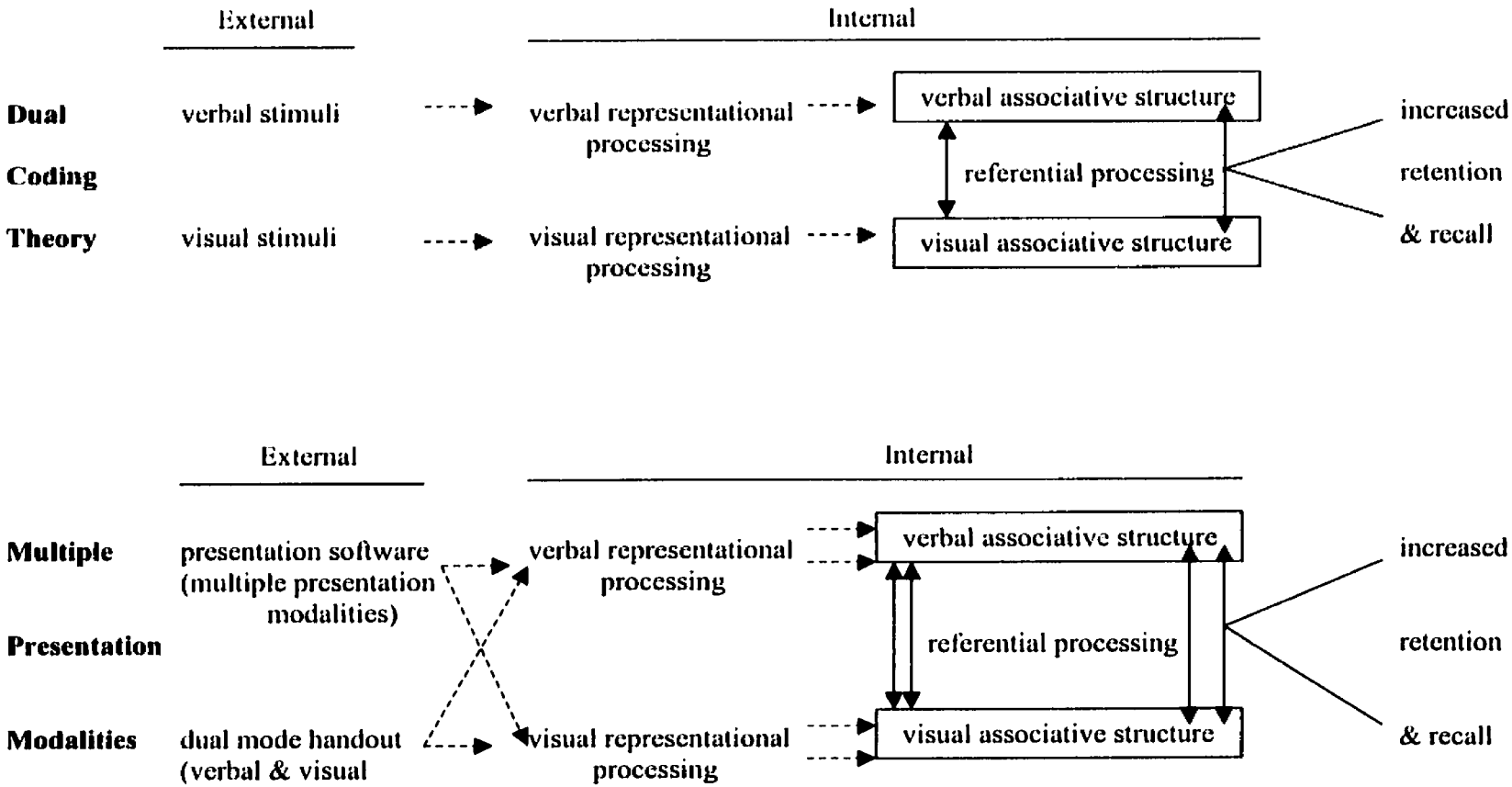
The literature on dual coding theory and multimedia approaches to learning strongly suggests that if two modes of external stimuli are used to present new information, these stimuli will create an additive and correlational effect within the referential processing systems. This dual coding, in turn, may increase retention and recall rates. These are used as indicators of cognitive achievement (learning).

Based on the dual coding supposition, the use of an external multimedia presentation modality coupled with a dual mode (verbal and visual) handout may produce a multiple coding effect within the referential processing system, which in turn, may significantly increase retention and recall rates.

Lehman & Dewey (1998, p. 2) argue that "learning outcomes are directly related to learning approaches (and teaching approaches in part)." The conceptual model for this research project is based on the concept that multiple presentation modalities will significantly increase the chances of recall.

The conceptual model (Figure 3, p. 46) represents how a multiple modality coding effect compares to the dual coded approach. The dotted lines represent linear, single mode influences. The unbroken lines represent the dual or multiple mode influences.

Figure 3. The Conceptual Model



Research Hypothesis

The null hypotheses.

There will be no significant difference between the scores on a measure of recall based on the use a single modality handout and a dual coded handout used in conjunction with multiple presentation modality platform.

A secondary hypothesis grew out of the predominant use of the visual presentation modality during conferences. The null hypothesis for this situation is as follows. There will be no significant influence on recall scores as a result of the presentation platform used.

Research Model

Dual coding research, especially that in the area of multimedia learning, provided several research models that initially appeared suitable for replication within this project. However, upon closer examination, many were found to be confined to the K-12 arena and used the associated pairs research design. Others focused extensively on computer simulations and computer-generated models as a design platform. The settings for these studies were all classrooms within post-secondary institutions. None of these approaches seems suitable, especially when viewed in light of the typical conference learning environment.

One of the outcomes of dual coding research is the enhanced effects that dual coding has on retention and recall. A search of relevant and current research in the area of reading comprehension based on dual coding led to several studies. A few of the studies looked at time sensitive retention and recall scores based on verbal/visual presentation of

reading passages and were scored using free recall via open-ended short and long answer questions. In addition, the subjects involved in these research projects were adult learners in post secondary classrooms. The basic parameters of these studies became the foundation of my own project.

Research Methodology

This study is an exploration of the concept that dual mode handouts may have an additive and positive effect on the retention and recall of conference education subject matter by adult learners.

The study does look at one set of anecdotal data; that of the correlation between a subject's perceived perceptual modality and retention and recall scores based on the handout assigned. This facet was considered integral to the study given the following prevailing assumptions:

a) Many conference meeting planners consider most adults are visual learners and so need visual handouts; and,

b) Many current academic researchers presume there is a predominant multimedia orientation to learning despite its not having been scientifically proven (Najjar, 1996).

The data are viewed as being anecdotal in that subjects were asked to complete an abbreviated perceptual modality instrument as a part of the seminar programmes. No controls were instituted and no additional information provided. This part of the research was seen as being of value to the study in that it could provide an indication of the need

to consider learning styles as a factor in determining not only content but presentation strategies during conference education programmes.

As previously indicated, this study looks at two questions:

1. Does the use of a dual modal handout (visual and text) lead to the clarification of the content in such a way that extra recall occurs in comparison with the use of a single modal handout?

2. Does a preferred perceptual modality (e.g. visual, auditory, kinetic) influence recall when comparing the use of dual mode as opposed to a single mode presentation delivery with respect to handout material.

General Overview of Study

A total of six events that met the definition of a conference event as described elsewhere in this paper were included in this study. All six events were combination events: that is, a conference and exposition held as a single entity. The six events spanned a time frame of 18 months, June 1999 through November 2000. All of the events were hosted by one of two sponsoring organisations. The events were chosen because their respective sponsoring organisations represent two of the three largest stakeholders within a single industry marketplace. These events are also among the largest educational events within that industry marketplace. The size of the events (each had a registration in excess of 2000 delegates) within a single industry segment presented a relatively homogeneous population from which to generate a valid random sample for this study.

One sponsoring organisation is a North American based international professional trade association. Three of the six events were hosted by this association. The first, an annual summer meeting, was held in Chicago in June of 1999. A total of 57 education programmes ranging from 60 to 90 minutes (n = 52) to 300 minutes (n = 5) were offered. The second event. the association's combined annual general and winter meeting, was held in December 1999 in Miami, FL. A total of 70 education sessions were offered. The third meeting, the 2000 summer meeting, was held in Baltimore, MD. A total of fifty-five 60 to 90 minute sessions and six 300 minutes sessions were offered to delegates.

The other three events were sponsored by an industry trade publication that hosts two conferences annually. The events do not move, they are held in the same cities, Baltimore and Las Vegas each Fall and Spring respectively. Two Fall events (1999 and 2000) and one Spring event (2000) are represented in this study. The average number of education programmes offered at the Fall event is 100. At the Spring Conference, the largest education event in the industry, an average of 170 ninety minute seminars are offered.

A total of five topics were presented across the six events for a total of 12 sessions. The topics were pre-determined by the sponsoring associations. Two topics were presented once (June 1999 and December 1999). One topic was presented twice (Fall 1999 and Spring 2000). One topic was presented three times (Fall 1999; Spring 2000; Fall 2000). The final topic was presented a total of five times (Fall 1999; Winter 1999; Spring 2000 [2 times]; and Fall 2000).

Two of the topics involved the presentation of a mandated continuing education (CEU) curriculum. The education programme was based on standardised programme material supplied by the association and was comprised of a student workbook (text-based), instructor manual and a prepared PowerPoint® presentation. Each session consisted of approximately 300 contact minutes.

The other 10 sessions were delivered as part of a programme that is eligible for elective credit towards an industry certification programme currently under the auspices of a California university. Each of these sessions was limited to approximately 90 contact minutes.

Each session followed an identical format. A PowerPoint® presentation with an average of 21 SVDs per topic served as a multimedia modality platform and adjunct to speaker content. Whole group discussion, note taking, a limited amount of small group work were the teaching strategies employed; use varied with the time allowed for the session. The same presentation materials were used for any topic repeated during the 18 month time frame.

The PowerPoint® presentations prepared for each topic were developed using a set of guidelines that would ensure consistency throughout all the presentations. Verbal (text) and visual (cartoons, graphs, illustrations) elements were used either individually or in combination on various slides. All visuals were presented in colour. Spot colour was used for headlines and major teaching points. Animation was limited to frame transition and the introduction of main teaching points. "Fly from right" (or left depending on the placement of visuals) was used for the introduction of teaching points.

All of the sessions were presented in meeting rooms within a downtown conference centre. All rooms were set to maximum capacity. Classroom style seating was employed for each session. Audio visual equipment had been pre set for each session. Depending on the room and the conference centre, the projection screen was either directly behind the speaker or at a 45° angle to the right or left of the speaker podium. The front of each room was set with either a raised platform, complete with podium, microphone and head table or with a table at ground level, all set in the middle of the room at the top end. Audio visual equipment to be used for subsequent sessions was in place and not movable in most situations. A standard LCD projector was used to present the PowerPoint® presentation from a PC-compatible laptop computer. Depending on screen placement, the projector and stand could be directly in front of the head table, on either side, or in some cases, placed on the first table in a classroom row at the front of the room. The classroom set up in each room usually left a wide middle aisle down the centre of the room.

At no time was any effort made to change the meeting room set-up. I considered it critical to the eventual outcome of the study that the learning environment exactly mirror what any learner in a conference education programme would encounter regardless of the topic being presented.

Sample

The sample population was extracted from the registered delegate list from each of the five conferences. Selection of subjects was made on-site, that is, at the conference,

and during regular conference education hours. No attempt was made to predetermine a sample population.

A significant reason for not predetermining the sample population centred on experimental validity issues, specifically Hawthorne effect and novelty effect, both of which could compromise internal validity of the study (Gay, 1992; Neuman, 1997). Hawthorne effect is seen as being a reactive arrangement that may influence a subject's performance based on their perception of receiving special treatment. The novelty effect focuses on increased interest, motivation and participation levels just because the subject is doing something different (Gay, 1992). The perceived lack of effort taken to predetermine a sample population was done to ensure that the subjects within each education session accurately reflected the *natural evolution* of a sample, in this case a true conference education programmes population (Eichelberger, 1989; Gay, 1992; Neuman, 1997).

A total of 334 people attended the 12 sessions used in this study. Attendance per session ranged from a low of 12 to a high of 55 (M = 29). The research project was introduced prior to the start of each session. A basic outline of the project was given and the call for volunteers was made.

A total of 51 subjects (15 %) of session attendees volunteered to take part in the study. All 51 completed the first test administered immediately following the presentations. Twenty-three subjects completed the second test held 48 hours later. Of the 23, 22 (43 %) were validated and were used for data analysis.

Researcher Bias

As indicated earlier all presentations were made by the researcher. An attempt to have other presenters take part in this initial research were unsuccessful. In order to limit any influence being the sole presenter might have on the study, several steps were taken. All presentations were scripted, that is, each was conducted using a standardised teaching outline. Where a session was repeated, the same outline was employed. Identical handout treatments were used in repeat sessions. All PowerPoint® presentations were standardised to ensure that animation techniques employed were the same and limited to slide transition and introduction of main teaching points. The size of the slide collection was restricted to a minimum of 17 and a maximum of 21 slides per presentation. The same layout and design process was used to create all slide presentations. Variations only occurred in the style of theme templates used.

Instrumentation

Handouts.

Each volunteer was randomly assigned one of three forms of a handout; graphic, text, or text/graphic with which they would use to follow the PowerPoint® presentation (See Appendices C, p. 101; D, p. 120; E, p. 132). This handout was also to be used for follow-up review once the session had ended.

Retention/Recall Indicator.

A questionnaire based on presentation content was prepared for each session. The test consisted of 15 knowledge and comprehension questions. The same test was

administered twice, within 15 minutes of the end of the presentation, and 48 hours later. The second time, the questions were arranged in a different order (See Appendices F, p. 149 and G, p. 152).

The tests were scored by two independent judges. Correct answers were rated on a scale of 1 to 3 depending on the difficulty and scope of the question. An answer sheet with a wide range of answer interpretations taken directly from the presentation content was provided. The maximum score attainable was 30 points. The inter-judge reliability was computed by correlating all pairs of total scores for each subject. In the case where individual questions were scored differently, a third judge was asked to assign a score.

Perceptual Modality Indicator.

Perceptual modality was measured using a modified checklist based on the Barbe-Milone Modality Checklist (Barbe & Milone, 1980). The checklist is comprised of a series of words that illustrate situations with a series of three corresponding descriptive phrases beside each word series. Subjects were asked to circle the description that best expresses how s/he handles each situation. A preponderance of responses in a single column would indicate a primary processing style, with the second most indicating an auxiliary style. No attempt was made to measure actual style preferences; this test would only help identify how subjects perceive their ability to process information, that is, their preferred perceptual modality (Wislock, 1993). Individual preferences were then matched to scored recall test results to determine if modality preferences tend to influence learning outcomes (See Appendix H, p. 155).

Population Statistics.

Once volunteer subjects had been identified, demographic information was gathered via survey questionnaires handed out at the beginning of each session (See Appendices I, p. 157 and J, p. 159).

Data Analysis

All data was analysed using SPSS, Version 10.5. Inferential statistical methods, Paired t-tests, ANOVA, were used to analyse test scores for retention and recall rates as well as score differences based on perceived modality against handout treatment. Reliability Analysis was used to determine inter-class correlation and inter-rater reliability for all judged paired raw scores. Descriptive statistical methods were used to compile population demographic information. The results of the data analysis are presented in Chapter Four.

Chapter Four

Results

Developing a valid data pool in any research study, large or small, takes a considerable amount of time. This small study was no exception. Once the recall tests had been collected, they had to be duplicated and presented to the two judges for marking. Where there was a difference of 2 or more points on any one set of test scores, a third referee was asked to re-mark and validate scores. The refereeing process was used on a total of six of the paired test scores. Inter-rater reliability analysis was conducted to validate test scores. A total of 22 validated pairs of test scores was achieved.

A total of 51 subjects completed the demographic questionnaires. All were reviewed for completeness and legibility. All 51 of the surveys were validated as being complete and usable for analysis. Each possible answer in the survey was coded for analysis using a simple numeric value system.

The study was looking for three major indices: (i.) how effectively a conference population mirrors national population statistics so that study findings could be applied to a national sample parameter; (ii.) the relationship between handout treatment and recall scores over time; and (iii.) relationship between recalls scores and perceived modality. Simple frequency analysis was used to complete the data analysis for demographic data. Since the study was attempting to establish a relationship between specific treatments over time and the interaction therein, it was determined to use paired T-tests and ANOVA to study test score and perceptual modality data.

Table 2

Characteristics of Sample Conference Population by Age, Previous and Future Education Plans

Variable	Range	M	SD
Age	22-64	39	10.53
Courses taken	1-4	2.33	1.30
Courses planned	1-4	2.35	1.03

The analysis of data presented evidence of statistical significance in the key area of increased recall rates based on handout treatment. Data analysis of scores based on perceived modality and handout treatment did provide a small amount of evidence to support the notion that modality may influence cognitive achievement. All results suggest the need for continued research in this area. The findings are presented below.

Population Statistics

Forty-two of the 51 subjects (82 %) completed the demographic survey. Major results are summarised in Tables 2 above and Table 3, p. 60.

In all respects, the profile generated from the convention sample population mirrors that of the North American adult learner population compiled from the literature. This is considered to be particularly important in that the study sample may be viewed as truly representative of the adult learner population in general. This being the case, the

Table 3

Characteristics of Sample Conference Population

Variable	Type	Number	%
Gender	Female	38	74.5
	Male	13	25.5
Education	High School	7	16.7
	Community College	9	21.4
	Undergraduate Degree	19	45.2
	Master's Degree	6	14.3
Course Motivation	Personal Development	4	9.5
	Voluntary Career Enhancing	36	85.7
	Mandatory Career Enhancing	2	4.8
Primary Provider	Community College	2	7.1
- previous	Employer	4	4.8
education	Private Seminar Company	5	9.5
courses	Professional Association	25	59.5
	University Credit Programmes	2	4.8
	Other	1	2.4

(table continued)

Variable	Type	Number	%
Primary Provider	Community College	3	7.1
- planned	Employer	5	11.9
education	Private Seminar Company	2	4.8
courses	Professional Association	22	52.4
	University Credit Programmes	5	11.9
	Other	1	2.4
Membership	Association	30	71.4
	Other	1	2.4
- main reason	Continuing Education	15	35.7
for joining	Business Contacts	13	31.0
- other reason	Continuing Education	9	21.4
for joining	Business Contacts	12	28.6
Industry work	Less than 1 year	6	14.0
experience	1- 3 years	8	18.6
	4- 5 years	6	14.0
	6- 7 years	6	14.0
	8-10 years	7	16.3
	10 plus years	10	23.3

(table continued)

Variable	Type	Number	%
Years in current	Less than 1 year	8	18.6
position	1- 3 years	12	27.9
	4- 5 years	8	18.6
	6- 7 years	3	7.0
	8-10 years	3	7.0
	10 plus years	8	18.6
Employer training	Yes	22	51.2
provided	No	21	48.8

results of the data analysis may be viewed as being applicable to most adult learning situations regardless of the host provider.

Inter-rater Reliability Analysis

All test results were duplicated and then scored by two independent judges, producing a total of 44 pairs. Each pair of test scores (n = 22) were then subjected to inter-rater reliability analysis to validate their use for data analysis. Intra-class correlation for Test 1 was .9851 (See Figure 4, p. 63). Intra-class correlation for Test 2 was .9929 (See Figure 5, p. 64).

Figure 4. Inter-rater Reliability, Raw Test Scores, Test # 1.

```
R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   (A L P H A)

                    Covariance Matrix

                VAR001      VAR002

VAR001         32.4264
VAR002         31.9632     32.4697

                     Correlation Matrix

                VAR001      VAR002

VAR001          1.0000
VAR002           .9851      1.0000

        N of Cases =        22.0

Item        Mean      Minimum    Maximum     Range    Max/Min  Variance
Means       19.9091   19.7727    20.0455     .2727    1.0138     .0372

Item        Mean      Minimum    Maximum     Range    Max/Min  Variance
Variances   32.4481   32.4264    32.4697     .0433     1.0013     .0009

Inter-item
Covariances Mean       Minimum   Maximum    Range   Max/Min    Variance
            31.9632    31.9632   31.9632     .0000     1.0000     .0000

Inter-item
Correlations Mean      Minimum   Maximum    Range   Max/Min    Variance
              .9851     .9851      .9851     .0000     1.0000     .0000

                          Intraclass Correlation Coefficient

Two-Way Mixed Effect Model (Consistency Definition):
People Effect Random, Measure Effect Fixed
 Single Measure Intraclass Correlation =    .9851*
    95.00% C.I.:            Lower =    .9644          Upper =    .9938
 F = 132.8482  DF = (    21,    21.0) Sig. = .0000  (Test Value = .0000)
 Average Measure Intraclass Correlation =    .9925**
    95.00% C.I.:            Lower =    .9819          Upper =    .9969
 F = 132.8482  DF = (    21,    21.0) Sig. = .0000  (Test Value = .0000)
*: Notice that the same estimator is used whether the interaction
effect is present or not.
**: This estimate is computed if the interaction effect is absent,
    otherwise ICC is not estimable.

R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   (A L P H A)

Reliability Coefficients     2 items
Alpha =    .9925           Standardized item alpha =    .9925
```

Figure 5. Inter-rater Reliability, Raw Test Scores, Test # 2

```
R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   (A L P H A)

                    Covariance Matrix

                VAR003      VAR004

VAR003         19.0130
VAR004         19.2684     19.8009

                    Correlation Matrix

                VAR003      VAR004

VAR003          1.0000
VAR004           .9931      1.0000

        N of Cases =        22.0

Item        Mean    Minimum    Maximum     Range   Max/Min  Variance
Means       2.1364  22.0909    22.1818     .0909    1.0041    .0041

Item        Mean    Minimum    Maximum     Range   Max/Min  Variance
Variances   19.4069 19.0130    19.8009     .7879    1.0414    .3104

Inter-item
Covariances Mean    Minimum    Maximum     Range   Max/Min  Variance
            19.2684 19.2684    19.2684     .0000    1.0000    .0000

Inter-item
Correlations Mean    Minimum    Maximum     Range   Max/Min  Variance
             .9931     .9931      .9931     .0000    1.0000    .0000

                         Intraclass Correlation Coefficient
Two-Way Mixed Effect Model (Consistency Definition):
People Effect Random, Measure Effect Fixed
 Single Measure Intraclass Correlation =    .9929*
    95.00% C.I.:            Lower =    .9829          Upper =    .9970
 F = 279.1875  DF = (    21,    21.0)  Sig. = .0000  (Test Value =
.0000)
 Average Measure Intraclass Correlation =    .9964**
    95.00% C.I.:            Lower =    .9914          Upper =    .9985
 F = 279.1875  DF = (    21,    21.0)  Sig. = .0000  (Test Value =.0000)
*: Notice that the same estimator is used whether the interaction
effect is present or not.
**: This estimate is computed if the interaction effect is absent,
    otherwise ICC is not estimable.


  R E L I A B I L I T Y   A N A L Y S I S   -   S C A L E   (A L P H A)

Reliability Coefficients     2 items
Alpha =    .9964           Standardized item alpha =    .9965
```

Table 4

Test Mean, Standard Deviation and Correlation Results on Retention/Recall Scores

Test	n	M	SD	r[1]
Graphic 1	7	20.42	3.50	
Graphic 2		21.14	4.10	.413
Text 1	5	23.80	2.05	
Text 2		23.20	3.63	-.161
Text/graphic 1	10	17.60	7.18	
Text/graphic 2		22.50	5.04	.635

Note. 1. Range: -1.0 to 1.0, statistical significance at 0.5

Retention and Recall Test Scores

Tests were divided according to the type of handout assigned; graphic, text or text/graphic. Test 1 and Test 2 scores were paired. The test mean, standard deviation, and correlation significance are shown in Table 4 above. The Pearson Product Correlation indicates that there is a statistically significant correlation between the mean scores in the dual mode handout treatment. There is no correlation shown in the case of the graphic treatment which tends to contradict the literature. The lack of correlation in the text treatment tends to mirror results from the literature. It should be noted that the lack of statistical significance may be due to the small sample size

Table 5.

Paired Sample T-Test (2 – tailed), Handout Treatments.

	Paired Differences							
				95% Confidence Interval of Difference				
	Std. Error Mean	SD	Mean	Lower	Upper	t	df	Sig.[1]
Graphic 1-2	-.7143	4.1519	1.5693	-4.5541	3.1266	-.455	6	.665
Text 1-2	.6000	4.4497	1.9900	-4.9251	6.1251	.302	4	.778
T/G 1-2	4.9000	5.5668	1.7604	-8.8822	-9.178	-2.784[2]	9	.021

Notes: 1. $\alpha = 0.05$

2. $t_{\alpha = 0.05, df} = 2.262$

A paired t-test was conducted to compare the Test 1 and Test 2 scores for each handout group. This was done to determine if there was a significant gain in recall over 48 hours in any of the treatment groups. As indicated in Table 5 above there was no significant difference in the Test 1 and Test 2 mean scores for two of the handout treatments, graphic and text. The results indicate that the text/graphic group experienced a statistically significant, $t = 2.784$ ($\rho = .021$, $\alpha = 0.05$) difference in the mean scores.

Given the lack of statistical significance found in two treatments (graphic and text) combined with the low sample size of these groups (graphic: Sig. = .665, n = 7 and text: Sig. = .778, n = 5), these two data sets were re-coded in order to conduct an analysis of variance (ANOVA) of test score differences. The results are summarised in Table 6 (p. 67).

Table 6.

Analysis of Variance (ANOVA). Test Score Differences, 2 Groups, Recoded and Mixed.

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
group	1.00	1	12
	3.00	3	10

Descriptive Statistics

Dependent Variable: diff

group	Mean	Std. Deviation	N
1	.1667	4.1304	12
3	4.9000	5.5668	10
Total	2.3182	5.2950	22

Tests of Between-Subjects Effects

Dependent Variable: diff

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	122.206[a]	1	122.206	5.239	.033
Intercept	140.024	1	140.024	6.002	.024
VAR00001	122.206	1	122.206	5.239	.033
Error	466.567	20	23.328		
Total	707.000	22			
Corrected Total	588.773	21			

a. R Squared = .208 (Adjusted R Squared = .168)

Estimated Marginal Means

group

Estimates

Dependent Variable: diff

group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	.167	1.394	-2.742	3.075
3	4.900	1.527	1.714	8.086

(table continued)

Pairwise Comparisons

Dependent Variable: diff

(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	3	-4.733*	2.068	.033	-9.047	-.419
3	1	4.733*	2.068	.033	.419	9.047

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable: diff

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	122.206	1	122.206	5.239	.033
Error	466.567	20	23.328		

The F tests the effect of group. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Combining the text and graphic handout treatments groups enabled an ANOVA to be conducted between this re-coded group and the text/graphic handout treatment to determine if there was a significant interaction between recall mean scores. As is shown in Table 6, the interaction between the Test 1 and Test 2 scores within-subject effect (F= 6.002, Sig. = .024) and between-subject effect (F = 5.239, Sig. = .033) for the text/graphic handout treatment are both statistically significant.

Perceptual Modality

All volunteer subjects (N = 51) completed the Perceptual Modality Indicator. Forty-three percent (n = 22) of subjects perceived themselves as being visual; 13.7 % (n = 7) auditory; 7 % (n = 7); and 27.5 % (n = 14) as being of a mixed modality. Modality preferences were also matched to the 22 subjects who completed both recall tests. Forty-

Table 7

Perceptual Modality Preferences in Sample Conference Populations

	Conference Population		Test Group Population	
Modality	N	Percentage	n	Percentage
Visual	22	43.1	10	45.5
Auditory	7	13.7	6	27.4
Kinesthetic	6	13.7	4	18.2
Mixed	14	27.5	1	4.5
None assigned	1	2.0	1	4.5
Totals	51	100.0	22	100.0

six percent (n = 10) were visual; 27 % (n =6) auditory; 18 % (n = 4) kinesthetic; and 4.5 % (n = 1) mixed. (See Table 7 above).

Even though the modality data was to serve an anecdotal function, tests were conducted to see if there was an interaction between test score differences and perceived modality preference. An analysis of variance (ANOVA) was conducted with no evidence of statistical significance noted. The lack of statistical significance may, in part, have been due to the very small size of the majority of the individual modality samples. More

Table 8

Differences in Recall Scores Relative to Perceived Modality and Handout Type

	Handout	Test 1	Test 2	Difference
Visual Modality (n = 10)	G	22	22	0.00
	G	20	18	-2.00
	G	14	23	9.00
	G	23	23	0.00
	T	26	20	-6.00
	T	22	22	0.00
	TG	28	23	-5.00
	TG	5	13	8.00
	TG	19	21	2.00
	TG	21	24	3.00
				M = 0.900
Auditory Modality (n = 6)				
	T	26	26	0.00
	G	19	16	-3.00
	G	20	18	-2.00
	G	25	28	3.00
	TG	9	17	8.00
	TG	20	26	6.00
				M = 2.00

table continued

		Handout	Test 1	Test 2	Difference
Kinesthetic Modality (n = 4)					
	T	23	20	-3.00	
	TG	17	29	12.00	
	TG	19	19	0.00	
	TG	26	28	2.00	
				M = 2.75	
Mixed Modality					
(n = 1)	T	22	28	6.00	
None Given (n = 1)	TG	12	25	13.00	
Total	n = 22				

importantly, the apparent lack of significance tends to undermine some of the literature that supports the idea that cognitive achievement is related to modality.

In order to determine if any relationship could be determined based on recall scores and modality preferences, differences in recall scores were grouped according to modality preference and handout treatment. The results are summarised in Table 8 (See p. 70).

Across all perceived modalities, the greatest number of recall rate increases resulted when a dual mode handout treatment was used (n = 8). Visual modal learners experienced the greatest number of decreased scores (n = 3) as well as the greatest

number of zero score increase (n = 3) across all handout treatments over time. In addition, some of the poorest (or lack of increased) results occurred when visual learners used the visual (graphic) handout treatment. Auditory learners fared poorly when using a single mode handout treatment. Scores, for the most part, increased when a dual mode handout treatment was used. Overall, kinesthetic learners fared best. The majority of the Test 1 scores were high and in one instance, there was a 108% increase in between Test 1and Test 2 score differences. It should be noted that, in this group, only two handout treatments are used; the more dominant being the dual mode treatment. A similar score increase is seen in a second mixed handout treatment score. Unfortunately, no modality preference was indicated. It should be noted that the lack of a significant number of all types of handout treatments across all perceived modalities may have affected this analysis.

Overall, the results of the data analysis tend to contradict the null hypotheses presented in this study. If the null hypotheses are correct, there would be no appreciable difference between Tests One and Two recall scores regardless of handout type used. Since, the data analysis found a statistically significant difference in recall scores based on handouts type, then quite probably the null hypotheses are false. Therefore, the null hypotheses are rejected and I conclude that a distinct relationship exists between recall scores and the number of presentation modalities used to present information and reinforce retention and recall over time. The data analysis also presents somewhat contradictory results with respect to perceived learner modality and cognitive outcomes. Each of the findings is discussed in detail in Chapter 5.

Chapter Five

Discussion

The primary thrust of this research project was to examine the influence of dual mode handouts on recall abilities among adult learners within a conference education population and environment. Data was collected using survey instruments and open-ended knowledge questionnaires. The summary of the data analysis is presented below.

Population

An analysis of the population statistics appears to validate the composite profile created of a universal employed North American adult learner. The profile depicts a learner who is between the ages of 35 and 49 and is female. She will focus her continuing education activities on career enhancement through programmes sponsored by a business or professional association. Study demographic data presents an almost identical portrait of the adult learner taken from within a conference population. Fifty-five percent of the conference population sample is within the 35-49 year age cohort. The dominant majority of learners are female (n = 38. 74%). An overwhelming 85. 7 % (n = 36) of the conference population list participation in career enhancing education programmes as the motivating factor for attending. All attendees have taken a minimum of one continuing education programme in the previous six months; 28.6 % have taken four or more courses. The most favoured education provider for courses previously taken is a professional association (59.5%). The second most favoured provider is a private seminar/training company at 11.9 %. Based on comparison of the two portraits, I am

presuming that the conference population represented in this study presents an accurate representation of a typical North American adult learner.

Other information gleaned from the population data relates to educational attainment and future education plans. Educational attainment paints an interesting picture. Fully 81 % of the conference population hold post secondary diplomas or degrees. Fourteen percent hold a Master's degree. Ninety-five percent of the sample population has plans to attend at least one education programme within six months: 50 % will attend two; and 21.4 % will attend four or more sessions. Again, the education provider of choice is a professional association; in excess of 52.4 % of the conference population plan on enrolling in courses offered by associations. Census and educational statistics corroborate these figures in their findings that the more educated the adult learner, the more likely s/he is apt to continue on a learning cycle that involves gathering up new knowledge from an array of sources and for an array of reasons; very few of which involve formal educational institutions.

The results of the data analyses are consistent with current educational trends. Adults are driving education in North America in a very significant way. They are looking for focused, direct, cost efficient and time-sensitive learning opportunities that meet their particular needs. While conference education is not without its problems, it can and does meet all of these requirements. Conferences are usually three to five days in length. The learner has direct access to all the programmes via the host association. Individual sessions are usually focused on industry-specific issues or professional development within the industry segment. Most conference education programmes are

inexpensive when compared to corporate or university programmes; they are also extremely time-sensitive, typically 90 to 300 minutes in length. In addition, many association sponsored education programmes are accredited through traditional post secondary institutions and carry fully transferable credit weight. For the foreseeable future, as long as associations continue to provide continuing education programmes via the conference education vehicle, they are going to continue to dominate the adult education marketplace.

Perceptual Modality

Anecdotal as was the intent, the data collected on perceived perceptual modality preferences also tends to validate the research previously reviewed. Reiff (1992) reported that approximately 25-30 % of the population will be visual; 25-30 % auditory; 15 % kinesthetic; and 25-30 mixed modalities. Boulmetis & Sabula (1996) refined these estimates slightly; resulting in percentages of 30; 25; 15;and 30 respectively. The data analysis shows that both the larger conference and test group populations (43.1% and 45.5 % respectively) perceive themselves as taking in and processing information visually. Within the larger conference population, the mixed modality rates are consistent with the research in terms of range (n = 13, 25.5 %). The literature argued that the more mature the learner, the more likely the inclination to take in and process information in mixed modalities. The number of auditory learners within the larger conference population is below the anticipated average at 17.6 %. The kinesthetic cohort is also slightly below average at 11.8 %. The dominance of the preference for the visual modality within the conference setting, which operates in a predominantly visual

presentation mode may account for the excess of visual learners over the statistical average. Also, the numbers may be slightly higher than the anticipated averages, as they are based on learner perception as opposed to true empirical testing equivalents. As Simpson (1995), alludes, adults are adept at adapting modalities to the specific learning environment; context and content. If a learner had been involved in a series of sessions prior to the test session, there is the possibility that the predominant visual presentation mode may have programmed internal modalities to operate in a predominantly visual mode.

An examination of the two sets of recall scores in relation to preferred learner modality also brings other interesting observations to the fore. The presentation modality literature supports the notion that visual external stimuli will have an additive effect on referential processing in both the verbal and visual domains, albeit, in some instances, a small one. A review of the results of the scores for the graphic handout at first appear to support this assumption. There were score increases for one visual and one auditory learners using the visual handout, the highest increase being a visual to visual connection. In two instances there were no score increases. It is interesting to note that in three instances, decreased scores were the result; two within the auditory modality. These results could represent a challenge to the prevailing assumption that a visual effect positively impacts the creation of internal connections between the ideas in content. It is anticipated, however, that this apparent anomaly may have more to do with the observations gleaned from the literature that how learners think they learn may not be consistent with their actual information intake and processing modalities.

The score differences related to the text-only handout and modality tend to be reflective of the literature in this area. Of note is the lack of increase and actual decrease in scores across three modalities, the visual, auditory and kinesthetic. This result lends credence to the theory that external text-only stimuli tends to relate only with corresponding internal representative text stimuli and does not cross over into other domains as does the visual. Also noteworthy is the score increase achieved by the single mixed modality learner in this particular sample. The score difference is equivalent to a 27.3 % increase, the sixth largest across the entire sample. The score increase may be indicative of the adult learner's ability to adapt to varying presentation modalities in reaction to both the total learning environment and the presentation modalities being used. This adaptation of a more holistic or integrated approach when taking in and processing new information is consistent with the literature (Boulmetis & Sabula, 1996; Reiff, 1992; Simpson, 1997; Truluck & Courtenay, 1999).

In examining learner perceived modality preferences with respect to the dual mode (text/graphic) handout, the results appear to affirm all of the arguments presented within dual coding, multimedia, perceptual and presentation modality literature. The five greatest increases in recall scores across three of the four modalities occur within visual/text handout cohort with the largest increase rated at 108 %. This cohort also exhibits the greatest number of score increases, seven out of 10, with a range of 2-13 points. These results suggest that the greater the presentation modalities, the greater the chance of increased triggers within referential processing systems.

Recall

Based on the data analysis, a distinct relationship exists between the type of handout used and recall scores on several levels.

A paired t-test was used to compare the mean Test 1 score with the mean Test 2 score to determine if there was a significant knowledge gain (recall) as a result of the type of handout used. As Table 5 indicates, this difference was statistically significant (Sig. 0.021), indicating that the text/graphic handout group experienced a significant gain ($t = 2.784$). The ANOVA conducted on the re-coded and mixed groups; graphic and text (Group 1) against text/graphic (Group 2) also indicates that the time effect is significant in terms of recall scores as is the interactive effect with respect to the dual coded handout.

The graphic handout cohort presents interesting results. Overall, there was a minimal increase in recall scores ($M = .7143$). While this result is consistent with the research that visuals act as positive triggers for recall, the expectation from the literature tended to generate anticipation of a greater increase. Based on the literature, especially dual coding theory, visuals should have the ability to not only make connections with their own internal representational cohort but to be able to cross over and influence the textual modal as well.

The overall decrease in recall scores ($M = -.6000$) achieved through the use of the text-based handout is consistent with the literature. The general consensus is that a text-based presentation modality on its own is not as effective as when used in combinations with other modes of presentation. According to Paivio (1986, 1991), external textual stimuli tend to only stimulate their internal representational counterpart and do not allow

for significant referential processing. Apparently, the inclusion of a multiple modal presentation format does little to enhance the textual modality.

The recall score increases associated with the dual mode handout are significant (M = 4.9000). In comparing the graphic to text/graphic scores, the difference is very high at over 600 %; between text and text/graphic the difference is even more dramatic. Again, these scores are consistent with both dual coding theory and multimedia research that finds:

a) greater comprehension with the use of text/visual as opposed to text or visual alone (Shu-Ling,, 1998);

b) visual/text mode is related to better recall than text-only even when the text-only mode provides full text (Velyo & Quirk, 2000);

c) achievement scores are significantly greater when visual/text reinforcement is provided as opposed to text only (Rieber, 1996); and

d) cognitive achievement is greater when a dual mode external stimuli is used as a complement to instruction ((Frear & Hirschbuhl, 1999; Gerlič & Jaušovec, 1999; Marsh, 1999; McLoughlan, 1997; Najjar, 1996).

Of note is the relationship between the results of the recall scores and perceived learner modality. Three of the highest scores occur in modalities other than the visual. This result appears to validate the arguments set forth by Najjar (1996), Gerlič and Jaušovec (1999) and Frear & Hirschbuhl (1999). These authors contend that multiple modal adjunct materials, when presented in conjunction with a multimedia presentation platform, may actually create a superlative added effect on referential processing. The

Conceptual Model (see p. 46) presented within this research supposes that the dual external stimuli will not only trigger corresponding internal representational stimuli; but will cross over and influence complementary representative stimuli at this stage of processing as well as during referential processing. This double exposure concept may provide twice the relevant and reliable triggers for retention and recall as indicators of learning. The results of this study tend to support the conceptual model.

Chapter Six

Conclusion

This research project was guided by the tenets of dual coding theory that predict greater recall (more effective learning) should result when information is both presented and encoded visually as well as verbally (Paivio, 1986, 1991). Incoming information that is dually coded increases the chances of retention and recall because the learner has two modalities to access and store information.

Research in the area of computer-based training and multimedia approaches to learning tend to support dual coding theory in the assertion that the greater the number of modalities used to present information, the greater the possibility of a superlative recall effect (Frear & Hirschbuhl, 1999; March, 1999; McLoughlan, 1997; Najjar, 1996; Rieber, 1996).

This research project set out to determine if a relationship exists between the type of handout used and learning outcomes in a conference education setting. Through the development of the conceptual model, it was determined that multiple presentation modalities may influence recall. The argument was presented that a dual mode (visual and textual) handout should have an additive effect on recall over a period of time. The results of the data from this study tend to support the primary hypothesis that the more presentation modalities used to present information coupled with a dual mode handout to reinforce presentation content, the greater the chance to enhance recall will be.

These results may be of significant value to those members of the association community who are in the business of preparing and producing conference education

programmes.

The study demographics support the assumption that the conference education sample population mirrors that of the larger North American adult learning population. Both populations tend to use associations as a primary provider of continuing learning opportunities. Being able to provide an indication as to the potential learning outcomes within a conference programme based on the presentation platform and adjunct learning materials used could go a long way in creating a more learner-centred and productive education environment, not only in conference settings but anywhere adults come together to learn.

This study tends to support the secondary hypothesis that the more presentation modalities used to deliver information, the less likely that presentation software alone, e.g. PowerPoint® will remain a dominant focus. A key to success for associations who provide adult learning opportunities may lie in developing a comprehensive education program designed to teach not only meeting planners on staff but conference seminar presenters and speakers as to the value of using multiple presentation modalities. Any education programme should reference the value of handouts as adjunct learning aids, the design and production of effective handout materials; the design and production of effective SVDs, and pay some attention to the idea of how learning style may influence individual learning outcomes.

The study results concerning perceptual modalities presented interesting findings that were in some instances in contradiction to the literature. While the sample sizes were too small to conduct tests to verify statistical significance, anecdotal information did

provide some insights. In general, the study data showed there is merit to the notion that how adults perceive they learn often has little or no relevance to their actual cognitive functioning. On the other hand, however, it also tended to contradict the idea that a specific presentation modality will impact a learning style, i.e., a visual presentation mode will positively influence the learning outcomes for a visual learner (Boulmetis & Sabula, 1996).

Also worthy of note was the finding that the use of a dual mode handout treatment positively influenced recall scores across all perceived modalities. On the surface, this finding tends to support the idea that much of the time adults use mixed modalities to process information as opposed to a single modality (Simpson, 1996) and that multiple presentation modalities will have a positive effect on cognitive outcomes (Najjar, 1996; Rieber, 1996).

Overall, the results of the study were encouraging. They tended to reinforce my belief that conference education programmes in their current format are, to a large extent, ineffective in creating positive environments where learning may actually take place. The study results also presented the genesis for a realistic solution to the problem of a visually dominated conference education environment. The visually-based presentation will probably continue to be the favourite platform during conference education programmes. The addition of adjunct learning aids in the form of dual mode handouts may bridge the gap for those adults who perceive themselves as other than visual learners and who find it difficult to adopt a differing processing mode.

Limitations of the Study

The findings presented in this study must be viewed in terms of the following limitations. No effort was made to control for the effect of intervening variables such as teaching strategies or the use of a computer-generated presentation platform. I am of the opinion that, in attempting to keep the conference research environment as *pure* as possible, it might be almost impossible to eliminate this effect. However, at the same time, it does speak to the very great need for research into the effect of SVDs and programmes such as PowerPoint® in not just conference education settings, but anywhere that this type of software is used. As was indicated in the literature review, there is a paucity of research into the effect of PowerPoint® and other such programmes on learning outcomes. For the most part, it is considered as producing an affective effect (Atkins-Sayre, 1998), but even this has not been substantiated.

The sample size for the study, in many respects, was too small to be able to draw adequate inferences based on significant statistical analysis. This was especially true with respect to perceptual modalities. It did not help that the study results also tended to support the contradictory nature of the research done in the area. Again, there appears to be a paucity of research in this area and further study is warranted.

Implications for Future Research

Research in the area of conference education is almost non-existent. It is hoped that this small study will provide the impetus for continued research in this very important area of adult education.

The study did advance the knowledge of dual coding to some degree. However, several questions for future research remain. More research is needed as to the generative effect of multiple media presentation platforms and their impact on the verbal and visual referential processing systems. Future research should also expand on the use of dual coded adjunct aids such as handouts as recall triggers both within and outside a multiple media presentation platform. As more is learned about the impact of instruction methods with respect to adult learners it will be important to identify how various strategies influence learning within confined educational environments such as conference settings.

Learning styles and modalities offer another set of potential research opportunities. This study highlighted both the limited and contradictory nature of the research to date. The research does tend to support the idea that adults have different preferences for perceptual modalities. The question then becomes: Does prior learning foster specific modality preferences (i.e., a modality based on the educational context) or does the learner's perception of a preferred modality determine cognitive processing choices? Though scant, the relationship between recall scores and perceived learning modalities revealed in this study does merit further investigation.

Teaching strategies and learning modalities is another area worthy of further research. As more is learned about the relationship between modality preferences, real or perceived, and teaching strategies, "it will be important to communicate these findings to both instructors and learners" (Boulmetis & Sabula, 1996, p. 22). This information will hopefully enable instructors in traditional classrooms and presenters at conference

education seminars to help all adult learners gain maximum advantage from any and every learning opportunity.

In conclusion, this small study presents a simple yet powerful way in which learning opportunities may be maximised in a conference education setting. The use of multiple media presentation platform coupled with a dual mode handout treatment appears to create an additive and correlational effect within the referential processing system. This *multiple coding effect*, in turn, appears to significantly increase retention and recall rates which are used as indicators of cognitive achievement (learning).

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Appendix A

Sample Information Letter

Date

Name
Company
Address
City, State, Zip Code

Dear .....

My name is Sandra Morrow.

In addition to working in the exposition industry I am currently working towards a Doctorate in Adult Education at the University of Calgary. The focus of my research is in the area of adult learning within the convention education field. My specific topic of interest is how adults learn during convention education seminars.

During the Registration session, I will be undertaking a small research project that focuses on the effect of seminar handouts on knowledge retention. The project will involve the following processes:

- the completion of a demographics survey (age, highest level of education attained etc.) that will be completed at the beginning of the session;
- a short test to determine preferred learning styles (done at the beginning of the session) that involves circling a written response that most closely parallel reactions to specific situations;
- the random distribution of two different handouts during the session;
- the completion of a short quiz composed of 15 questions at the end of the session
- a follow-up quiz 48 hours later.

All other aspects of the seminar will remain the same; in other words, it will be a fully interactive session with a specific focus on registration as a management process within the job

of exposition management. No mention of the study will be made during the session, nor will any research processes take place during the session.

While participation in the Registration session is taken for granted, participation in the study itself is not. Your participation in the research project is **completely voluntary** and requires your informed, written consent to take part in the study. Since this is a research project, the identity of all participants will remain anonymous. This will be accomplished by assigning each person who agrees to take part in the study a coded number. This number will be assigned prior to the start of the study and will be used to identify participants on test sets and all pre-tests etc. At no point during this study will anyone participating in the study be subjected to risk in any form other than ordinarily incurred in daily life.

If you would like to take part in this research project, please complete the accompanying Consent Form and return it to me.

Thank you for taking the time to review this information. If you have any questions about the project that have not been answered in this letter, please contact me at (403) 274-8858; my supervisor, Dr. Alice Boberg, (403) 220-7520; or the office of the Vice President (Research), University of Calgary, (403) 220-3381.

Yours truly,

(Mrs.) Sandra Morrow, M.Ed., CAE, CEM

Appendix B

Consent Form

This form confirms the consent of _____ to
(full name of participant)

participate in the research **project titled:** Adult Learning During Convention Education Programmes: How Dual Mode Handouts Aid In Retention/Recall, conducted by Sandra L. Morrow, M.Ed., under the supervision of Dr. Alice Boberg, in the Graduate Division of Educational Research, Faculty of Education, University of Calgary. The purpose of the study is to is to determine if the use of a multimedia handout (verbal and non verbal) leads to the clarification of the content in such a way that extra recall efforts occur in comparison with the use of a single non verbal (SVD) based handout.

A second purpose of the project is to determine if a preferred perceptual modality (e.g. visual, auditory, kinetic) influences recall efforts when comparing the use of a multimedia as opposed to a single channel system of presentation delivery with respect to handout materials.

I have been informed, to an appropriate level of understanding, about the purpose and methodology of this research project, the nature of my involvement, and any possible risks to which I may be exposed by virtue of my participation.

I agree to participate in the project by doing the following:

- Completing a brief pre-test to determine my knowledge level about the registration process.
- Completing a demographics survey.
- Completing a brief pre-test that indicates my preferred learning style preferences.
- Participating in the Registration session using one of two randomly distributed handouts.
- Completing a short quiz composed of 15 open ended questions at the end of the session.
- Completing the same short quiz composed of 15 open ended questions 48 hours after the completion of the first test.

I understand and agree that:

- My participation is voluntary and I have the right to withdraw from this research at any time without penalty.
- The researcher has the corresponding right to terminate my participation in this research at any time.
- Participation or non-participation will not affect my ability to take the Registration seminar.
- All data will be kept in a secure place inaccessible to others.
- Disposition of data will be carried out in the following manner:
- Shredded when the project is completed.

- Confidentiality will be assured in the following manner:
- Study participants will not be identified in the Registration session in any form

- All data collected will be transferred to computer disc format and discs kept in secure storage during the project
- Data will only be used by the researcher during the project. Access to data will be given the researcher's supervisor on a "as requested basis" to ensure the overall integrity of the project.
- Anonymity will be assured in the following manner:
- All participants will be identified by a randomly assigned coded number.
- The coded number will be used on all documents and tests as the only form of identification
- Demographic information will be used only to provide a general profile of session participants
- Data will be:
- Coded in such a way that I will not be identified
- Will only be presented in aggregate form
- Participants will be able to read or obtain the research report in the following manner:
- Review draft of pertinent chapter or report
- The benefits to participants include:
- Introduction to research in the convention education field
- Being part of a study that may provide insights into the need for standardised learning materials for adults participating in convention education programmes
- The risks involved in participating in this study include:
- No greater risks than those ordinarily incurred in daily life

As an active participant in collaborative research I would like my input recognised in the following way:

I understand that it may be desirable, for comparative purposes, to repeat this research on another site or use the data from this research for comparison with related existing research. I understand that any subsequent use of the data from this research will conform to the above parameters.

I understand that the results of this research will be used for publication, presentation to scientific groups, etc. I do not object to this additional use of the research data and give permission to:

Sandra Morrow Phone: (403) 274-8858 Fax: (403) 274-9388 E-mail: slmorrow@ucalgary.ca

A duplicate copy of the signed consent form is being provided for my records.

I have read the Consent Form and I understand the nature of my involvement. I agree to participate within the above stated parameters.

Name of Participant:_____ Signature of Participant: _____

Date: _____

Return this form via fax to (403) 274-9388 or via mail in the enclosed self-addressed envelope.

Appendix C

Dual Mode Handout

Don't Look At Me In That Tone Of Voice! ©

Session: 805

Exhibitor Show 2000

Las Vegas

Presented By:

Sandra Morrow, M.Ed., CAE, CEM

TSM, Inc.

P.O. Box 64024

5512 – 4 Street NW

Calgary, AB, T2k 6J0

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Sandy has sixteen years experience as a professional association manager and trade show/convention manager. This dual career has provided innumerable opportunities to gain experience in having to handle functions for as few as 5 to as many as 3500 persons.

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Sandy is the author/editor of The Art of the Show: An Introduction to the Study of Exposition Management, published by the IAEM Foundation, Dallas.

Essential Learning Components

The Essential Learning Components listed below represent the main learning objectives of this seminar.

These core concepts are the basis of the knowledge transfer objectives of "Don't Look At Me In That Tone Of Voice."

The ELC's are your measuring tool to evaluate your instructor and are intended to measure attendees' comprehension via a post seminar quiz.

1. **The Communication Process**.

   The communication process is comprised of 6 inter-related and interdependent elements that impact each communication transaction. This seminar helps attendees identify the 6 elements and how they impact personal communication styles.

2. **Communication Principles**.

   All communication is based on 5 principles. This seminar will enable attendees to how these principles determine the content and impact of their communication transactions.

3. **Non-verbal Communication**.

   Non-verbal communication makes up 93% of every communicated message. This seminar will enable attendees to identify the two components of non-verbal communication and the unique characteristics of this dominant communication process.

4. **Paralanguage**.

   Paralanguage makes up 28% of the communicated message. In this seminar, attendees will learn how they manipulate the 4 characteristics of paralanguage in developing their individual communication style.

5. **Vocal Interference**.

   Vocal interference is the result of poor communication habits. Through this seminar, attendees will learn how verbal interference may lessen the impact of their communicated message.

6. **Body Language**.

   Body language creates the greatest impact in a communicated message. In this seminar, attendees will learn how body language is used to replace speech and it is used to define the concept of personal space.

7. **Communication Power**.

   Communication is based on power relationships. Through this seminar, attendees will be able to identify the 2 types of conversational power.

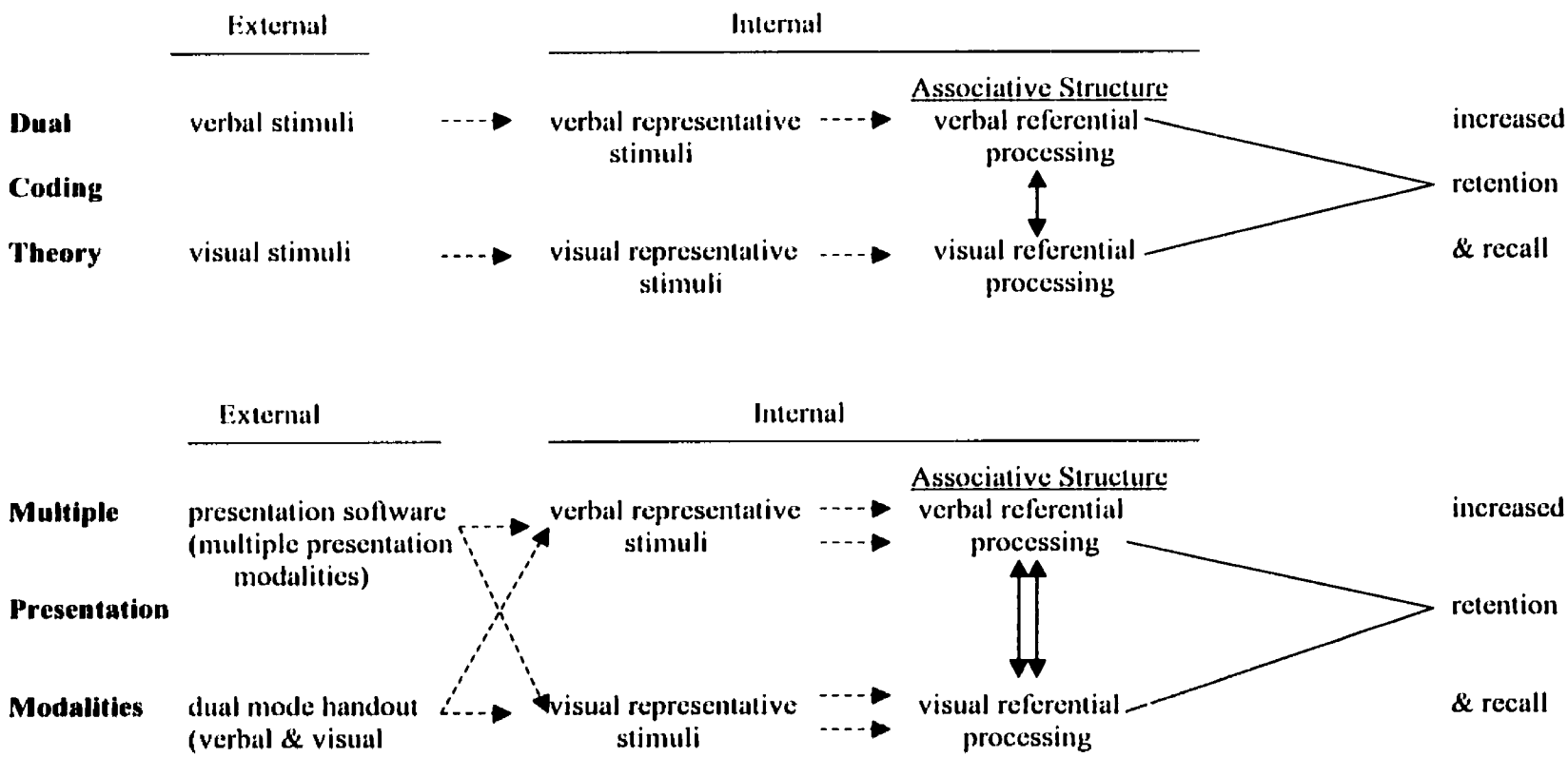
8. **Power Talk**.

   Effective communication is powerful communication. In this seminar, attendees will learn how to create a powerful communication style by learning the "rules of thumb" of Power Talk.

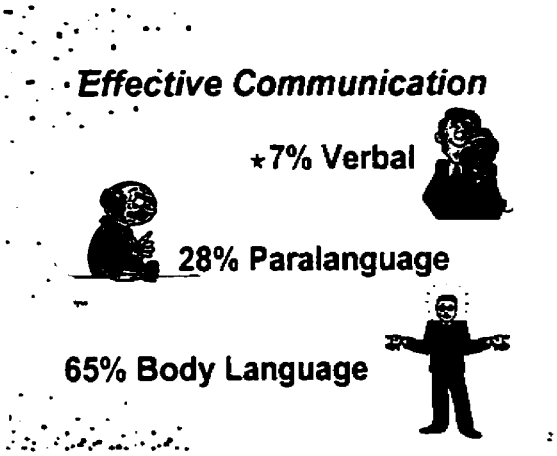
9. **The Effective Merging of Powerless and Powerful Communication**.

   Women and men posses both good and poor communication habits. In this seminar, attendees will learn what habits work best and which should be replaced in order to become effective, powerful communicators.

Figure 3. The Conceptual Model



Introduction



93% of any message we communicate to another person is not what we say but how we say it!

The first and foremost aspect of any relationship is the ability to communicate. It is fundamental to our survival in the business world to be able to effectively communicate specific messages to clients, co-workers or partners, that in turn, is correctly conveyed and more importantly, correctly received and interpreted by that client, co-worker or partner.

Socio-linguist Deborah Tannen believes that

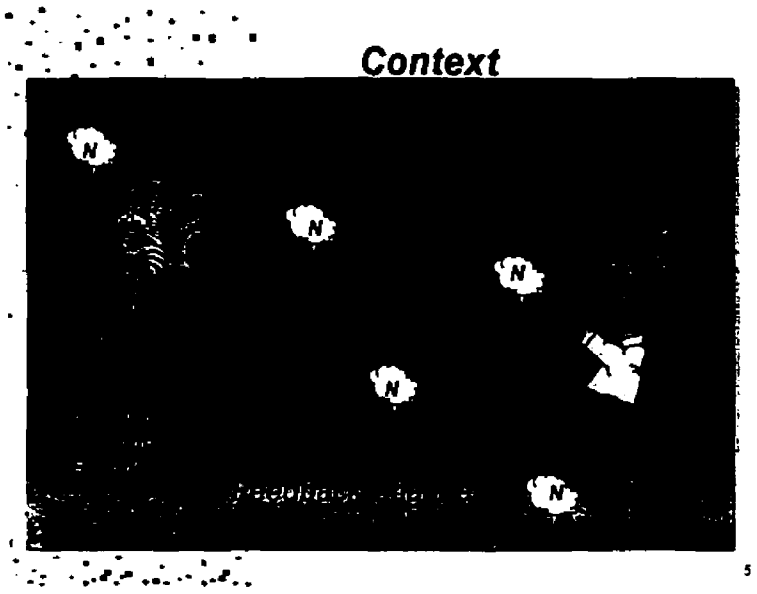
"Each person's life is lived as a series of conversations."

If as Tannen states, we do live our lives moving from one conversation to another - it becomes necessary to remember two truths:

1. Each of us brings to the "conversation" a perception of the world that is uniquely our own. The meaning and interpretation we place on the conversation will be different from that being expressed by the other person. Expressed another way - reality is an individual perception.
2. There are rules and guidelines for every conversation - and these rules and guidelines are different for every conversation.

The Communication Process

Communication is the transactional process of creating meaning. It takes at least 2 people for communication to occur - even if one of them says absolutely nothing at all!



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Based on how these elements are affected by our perception of a situation, it is often necessary to determine the outcome of a conversation before we start talking!

Communication Principles

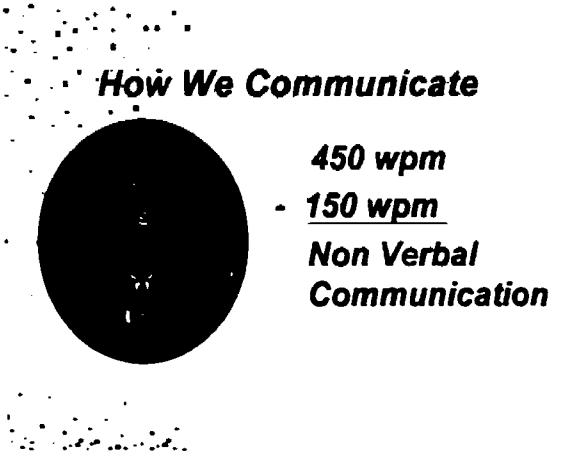
Principles are guidelines - general laws of action. There are five basic principles that are foundational to our ability to communicate effectively. These five principles are:

1. Communication has a specific purpose.
2. Communication is continuous.
3. Communicated messages may be spontaneous, pre-planned or conditioned responses.
4. Communication is based on relationships.
5. Communications skills are styles are learned.

EFFECTIVE COMMUNICATORS ARE MADE, NOT BORN

How We Communicate

Human communication is made up of 2 components: verbal and non-verbal.



Non-Verbal Communication

Non-verbal communication has some unique characteristics, which include the following:

1. It tends to be ambiguous.
2. It is continuous.
3. It is multi-channeled
4. It is unconscious
5. It is culturally determined and gender defined.

Non-verbal communication is made up of 2 components, paralanguage and body language.

Paralanguage - How Something Is Said

Paralanguage makes up 28% of the communicated message and focuses on 2 areas; voice characteristics and vocal interference. There are 4 distinct voice characteristics that make up paralanguage:

1. ***Pitch (highness/lowness)***. We all have a unique, natural pitch with a range of about 2 octaves. Most of us, however, use only 2-3 notes within this natural range. The lack of range is one reason why there is a tendency towards poor listening habits. In addition, overtime, many of us have learned to manipulate that pitch in order to affect the message we communicate.
2. ***Volume (loudness)***. Every person, regardless of physical size, can make the voice louder. Volume is increased by contracting the abdominal muscles, which in turn increases the pressure pushing air up out of the breathing passage past the voice box.

Many people use volume to make up for a perceived lack in physical size while others use it to reinforce size. Both are further examples of how we manipulate paralanguage

3. ***Rate (speed/pace)***. The usual rate of speed for normal conversations is 140-160 words per minute. While pace is an individual choice, it is important to remember that the pace you set impacts how another person hears what you are saying; understands your word choice and their attached meaning; and how well he/she utilizes the message as a precursor to their own action.

4. ***Quality (tone)***. The sound of your voice is indicative of its quality. The best vocal quality is clear and "easy on the ears". Variations in pitch, rate and volume also impact vocal quality. The emotional state of mind of the message sender also can impact vocal quality. As listeners, we often assign stereotypical labels based on the quality of the message received.

Vocal Interference - The Other Paralanguage Issue

Vocal interference is that part of the verbal message that has crossed over into the realm of paralanguage. It is a visible sign of a growing laziness in terms of communication skills in North America.

Vocal interference results from a *fear of momentary silence*. We have been taught it is impolite to interrupt - until the flow of sound stops. Many people need time to connect thoughts to words. In order to prevent dead air time, people fill in the spaces with "words" such as 'uh', 'like', 'er'. Media and other venues have promoted the rapid increase of vocal interference. Unfortunately, since vocal interference is often used as a form of 'cultural' acceptance, it largely goes uncorrected and ends up becoming a very bad verbal habit and an integral part of our overall communication pattern.

Body language us usually made up of eye contact, facial expression and gestures. Body language serves several functions within the communication process.

Body Language

The biggest slice of the communication pie!

The major uses are:

1. To take the place of words/phrases.
2. To complement speech.
3. To augment verbal expressions of emotion.
4. To control the flow of conversation.
5. To relieve physical tension.

"People" Space

Defined by Body Language

Public Zone

144" plus

Body language is not something we can take or leave - it is a part of the human condition. We are born with body language. Body language does not lie. Because they tend to use body language more when they talk, women are considered to be better readers of body language than are men. And, as stated previously, body language is defined by culture and the gender of the speaker and listener.

Complementary or "one down" communication.

n a complementary communication transaction, one person consistently gives up the "speaking floor" to another. They chose (or have no choice) to assume a powerless one down position and speak accordingly. A conversation between a supervisor and workers, or between workers, where one acquiesces her or his position within the group to the more verbally dominant person is an example of complementary power.

Communication Power

Supplementary

Symmetrical or equal status communication.

In a symmetrical communication transaction, each speaker has equal status. The focus of power is not constant, but is traded back and forth. Not only does the focus of power shift in such situations, but often the speech patters change as well. A lively back and forth discussion is a good example of symmetrical power.

Power Talk

- ★ Understand power
- ★ Perspective
- ★ Focus
- ★ Change habits
- ★ Assertive NVC
- ★ Confident & competent

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In business, it is easy to slip into a powerless situation conversationally just through the choice of words brought into the conversation.

Hedges -

Hesitations -

Intensifiers -

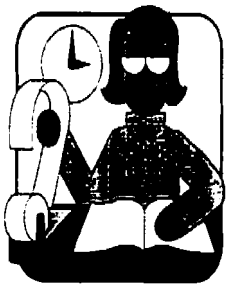
Polite Forms -

Tag Questions -

Disclaimers -

"Woman" Talk

- Consensus
- Non verbals
- Vocal traits
- Bad habits



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Man Talk

- Assert opinion
- Limited NVC
- Limited Vocals
- Bad Habits

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The Effective Merging of Powerless and Powerful Communication

Communication theorists consider women to use more powerless conversation than their male counterparts because they use communication to achieve consensus; use more non-verbals; have differing vocal traits and some perpetual bad habits such as using tag endings. Men are perceived as using over-powering communication in that they usually communicate to assert an opinion; tightly control their use of non-verbals; limit their vocal output and have the bad habit of taking over conversations, especially in mixed company.

Effective powerful communication in business and elsewhere means taking the best of both sets of communication habits and merging them into ***Power Talk***.

- Power Talk is characterized as being clear, concise and concrete.

- Non-verbals are use efficiently and effectively.

- Effective listening becomes a part of the communication transaction.

Effective Listening

**"Listening isn't just hearing. It's understanding feelings and emotions. Each person we meet has a common need —
for us to listen how they feel"**

...Ron Willingham
Hey, I'm the Customer

Effective listening puts the focus of the conversation squarely on the speaker - and on you, the listener.
It is Powerful Conversation.

In Summation

- *Know the rules of Power Talk*
- *Merge the best of woman & man talk*
- *Create a clear, concise & concrete communication style*
- *Listen effectively*
- *Enjoy the conversations of life*

In Summation

- *Understand how communication works*
- *Know how you use paralanguage*
- *Know when and how to use body language effectively*
- *Understand the role of power in communication transactions*

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Appendix D

Graphic Handout

The Basics of Meeting Planning

Course 206/207
Exhibitor Show Fall, 1999
Baltimore

Presented By:

Sandra Morrow, M.Ed., CAE, CEM
TSM, Inc.
P.O. Box 64024
5512 – 4 Street NW
Calgary, AB, T2K 6J0

Preface

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The seminar is rated as applying to ALL LEVELS.

Special attention has been paid to the printed format of this material to allow seminar participants to take notes as desired. Questions are welcome throughout the presentation. If any participant considers it necessary to engage in a prolonged discussion, the instructor is prepared to accommodate such requests at a mutually agreeable time after the seminar is over.

This course material and the instruction offered have been designed to introduce participants to basic concepts surrounding the organization and preparation of meetings of any size.

The material has been developed to be as relevant as possible at the time of presentation. However, this material does not purport to be the complete authoritative guide on the subject nor is it intended to be specific to the products or services of any one supplier.

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Essential Learning Components

1. **MEETINGS ARE BIG BUSINESS:**
   Every hour of every day, someone, somewhere is in a meeting! In this seminar, students will discuss the economic impact meetings have on today's marketplace.

2. **A MEETING BY ANY OTHER NAME:**
   Meetings go by many names - seminars, training sessions, workshops, sales talks, debriefings. Students will determine a working definition of a meeting useful within their organisational context.

3. **VITAL INGREDIENTS:**
   A meeting is made up of three basic yet crucial elements that must be balanced in order to achieve a successful outcome. In this seminar, students will gain an understanding of these elements and how to create a balanced meeting program.

4. **PICK A PLACE, ANY PLACE:**
   Site selection is the first crucial decision a meeting planner usually makes. Students will discuss the basic guidelines to follow in choosing the right location and facility for a meeting.

5. **A PICTURE IS WORTH 1000 WORDS:**
   Most meetings have some form of audio visual presentation included even it is only a flip chart. In this seminar, students will learn practical applications and tips to ensure a successful audio visual program.

6. **WILL THAT BE A "T" OR A "U"?:**
   The arrangement of tables and chairs within the meeting room can have a significant psychological effect on meeting participants. This seminar will discuss 3 basic room setups and their effective use in planning meetings.

7. **ADA COMPLIANCE:**
   Yes, disabled meeting attendees have special needs. No, it does not have to take a big bite out of your time or financial budget. This seminar will discuss some basic ways of making your meeting equally accessible to everyone who wishes to attend.

8. **BUILDING BRIDGES:**
   The successful staging of a meeting involves the combined efforts of many individuals in a united team effort. In this seminar, students will discuss 6 strategies for establishing effective communication channels with all players.

9. **EVERYBODY'S A WINNER:**
   Negotiating what you want is a cornerstone of the meeting planning process. Students will learn what items should be included in a basic contract when organising a meeting.

10. **WAS IT WORTH IT?:**
    50% of all meetings tend to be unproductive, yet people keep going back for more! It is critical to the success of any meeting to evaluate both the planning process and the program. In this seminar, students will discuss effective ways to evaluate the success and productivity of a meeting.

Meetings Are Big Business

- Estimated conomic impact **$ 90 Billion**
- Direct spending in 1995, $37.4 Billion
  - 797,000 corporate meetings
  - 11,000 conventions
  - 176,000 association meetings
    983,000 meetings

The "Value" Of Meetings

- Value of a meeting is determined by:
  - who attends
  - time spent
  - $$ spent
  - outcomes
  - net return on investment

Meeting Elements

- Sponsor
- Attendees
- Environment

Meeting Elements

- Attendee
  - most neglected person in meeting planning loop

Attendee Profile

- "Composite Drawing"
  - includes details of
    - age/gender
    - job/income
    - motivation
    - participation level
    - other history relevant to your event

Meeting Elements

- Environment
  - made up of both physical and psychological components

Meeting Basics

- Notice
- Agenda
- Chair
- Rules of Order
- Secretary
- Minutes
- Quorum

Meeting Agenda

- Call to Order
- New Business
- Approval of Agenda
- Next Meeting
- Minutes Last Meeting
- Adjournment
- Business Arising

Site Selection

- Do your homework
- Check less traveled areas
- Use a floor plan to check sizes/shapes
- Arrive unannounced or visit incognito

Never Take Anything For Granted

Audio Visual Considerations

- This is a 32 point font
- This is "arial" sans serif font
- This line uses the 6 x 6 rule
- Blue is easiest to read
- Use only 6 numbers per page
- Bullets (symbols) are best

What Is Usable A/V Space?

- Room dimensions minus
  - 10 feet for frontage
  - 6 feet from foot of screen/podium
  - 7 feet from chair back to wall
  - 5 feet for side aisles
  - ?? feet for exits as per fire regulations

Meeting Room Set-Up

- group identity
- lines of vision
- a/v placement
- access & egress
- comfort zones
- working space

Meeting Room Set-Ups

Basic Meeting Room Set-Ups

- Theater/Auditorium
- Classroom/Schoolroom
- Board Room/Conference style
  - » hollow square/block square
  - » uses alphabet shapes such as E, T, U

Meeting Room Set-Ups

- Set-ups for disabled persons
  - » average chair
    - 16-18 inches wide
    - 18 inches high
  - » average table
    - 29 inches high
  - » wheelchairs
    - 36 inches wide
    - 20-24 inches high
    - 5 foot turning radius

Meeting Room Set-Ups

- Considerations For Disabled Persons
  - » interpreters/signers
  - » audio enhancement aids
    - head sets, audio augmentation systems
  - » closed caption TV decoders
  - » Braille signs/meeting materials
  - » flashing fire alarms

Team Building

- Create a plan
- Build a knowledgeable support team
- Communicate well, often & in writing
- Delegate responsibility & authority
- Reinforce team bridges
- Share the success

Negotiation

Negotiation is the process by which two parties reach agreement on various points of interest to each other.

Communication Survival

- Facilities list all event needs on a function sheet or function contract
- Send your version of a function sheet for sales/catering liaison to work from
- Double check facility version before signing. When in doubt ASK!
- Signed function contract is a **contractual agreement**

The Next Step - Evaluation

- Evaluation process is the beginning, not the end, of the planning process.
- Two forms of evaluation
  - formative
    - e.g. budgets, pre-registration
  - summative
    - post event critiques, surveys

Evaluating Your Meeting

Economic Impact

Program

Team Process

In Summation

- Understand the value of your meeting
- Know key participants & environment
- Develop useable/workable plan
- Understand meeting basics/protocols
- Know what site works best

In Summation

- Know your audio/visual needs/limitations
- Build responsible teams
- Communicate, communicate, communicate
- Negotiate openly and fairly
- Develop realistic/usable evaluations
- Bask in the glow of a job well done

Appendix E

Text Handout

In That Tone Of Voice! ©

Session: 805
Exhibitor Show 2000
Las Vegas

Presented By:

Sandra Morrow, M.Ed., CAE, CEM
TSM, Inc.
P.O. Box 64024
5512 – 4 Street NW
Calgary, AB, T2k 6J0

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This course material and the instruction offered have been designed to introduce participants to basic concepts surrounding the communication process and to show how changing communication habits may lead to more effective communication interchanges.

The material has been developed to be as relevant as possible at the time of presentation. However, this material does not purport to be the complete authoritative guide on the subject nor is it intended to be specific to the products or services of any one supplier.

CEUs are available upon successful completion of this seminar program. Visit the CTSM service desk for additional information and details.

About Your Presenter

Sandy Morrow, M. Ed., CAE, CEM, is President of Trade Show Mangers, Inc., a small independent management and consulting firm whose home base is Calgary, Alberta, Canada.

Sandy has sixteen years experience as a professional association manager and trade show/convention manager. This dual career has provided innumerable opportunities to gain experience in having to handle functions for as few as 5 to as many as 3500 persons.

Sandy's work-related hobby is that of Adult Educator and trainer. She has written 2 continuing education courses on event management for the University of Calgary and acts a facilitator and trainer at national/international industry conferences several times a year.

Sandy has been a feature speaker at the national conferences of the Mexican Association of Trade Show Managers; the Exhibitor Show; Canadian Society of Association Executives; International Association for Exposition Management and at various regional meetings of the International Association of Exposition Managers and the Canadian Society of Association Executives.

Sandy is the author/editor of The Art of the Show: An Introduction to the Study of Exposition Management, published by the IAEM Foundation, Dallas.

Essential Learning Components

The Essential Learning Components listed below represent the main learning objectives of this seminar.

These core concepts are the basis of the knowledge transfer objectives of "Don't Look At Me In That Tone Of Voice."

The ELC's are your measuring tool to evaluate your instructor and are intended to measure attendees' comprehension via a post seminar quiz.

1. **The Communication Process**.

   The communication process is comprised of 6 inter-related and interdependent elements that impact each communication transaction. This seminar helps attendees identify the 6 elements and how they impact personal communication styles.

2. **Communication Principles**.

   All communication is based on 5 principles. This seminar will enable attendees to how these principles determine the content and impact of their communication transactions.

3. **Non-verbal Communication**.

   Non-verbal communication makes up 93% of every communicated message. This seminar will enable attendees to identify the two components of non-verbal communication and the unique characteristics of this dominant communication process.

4. **Paralanguage**.

   Paralanguage makes up 28% of the communicated message. In this seminar, attendees will learn how they manipulate the 4 characteristics of paralanguage in developing their individual communication style.

5. **Vocal Interference**.

   Vocal interference is the result of poor communication habits. Through this seminar, attendees will learn how verbal interference may lessen the impact of their communicated message.

6. **Body Language**.

   Body language creates the greatest impact in a communicated message. In this seminar, attendees will learn how body language is used to replace speech and it is used to define the concept of personal space.

7. **Communication Power**.

   Communication is based on power relationships. Through this seminar, attendees will be able to identify the 2 types of conversational power.

8. **Power Talk**.

   Effective communication is powerful communication. In this seminar, attendees will learn how to create a powerful communication style by learning the "rules of thumb" of Power Talk.

9. **The Effective Merging of Powerless and Powerful Communication**.

   Women and men posses both good and poor communication habits. In this seminar, attendees will learn what habits work best and which should be replaced in order to become effective, powerful communicators.

Introduction

93% of any message we communicate to another person is not what we say but how we say it!

The first and foremost aspect of any relationship is the ability to communicate. It is fundamental to our survival in the business world to be able to effectively communicate specific messages to clients, co-workers or partners, that in turn, is correctly conveyed and more importantly, correctly received and interpreted by that client, co-worker or partner.

Socio-linguist Deborah Tannen believes that "Each person's life is lived as a series of conversations." If as Tannen states, we do live our lives moving from one conversation to another - it becomes necessary to remember two truths:

1. Each of us brings to the "conversation" a perception of the world that is uniquely our own. The meaning and interpretation we place on the conversation will be different from that being expressed by the other person. Expressed another way - reality is an individual perception.

2. There are rules and guidelines for every conversation - and these rules and guidelines are different for every conversation.

The Communication Process

Communication is the transactional process of creating meaning. It takes at least 2 people for communication to occur - even if one of them says absolutely nothing at all!

As a process, communication is composed of 6 inter-related elements.

1. Context

2. Participants

3. Message

4. Channel

5. Noise

6. Feedback

Based on how these elements are affected by our perception of a situation, it is often necessary to determine the outcome of a conversation before we start talking!

Communication Principles

Principles are guidelines - general laws of action. There are five basic principles that are foundational to our ability to communicate effectively. These five principles are:

1. Communication has a specific purpose.

2. Communication is continuous.

3. Communicated messages may be spontaneous, pre-planned or conditioned responses.

4. Communication is based on relationships.

5. Communications skills are styles are learned.

EFFECTIVE COMMUNICATORS ARE MADE, NOT BORN

How We Communicate

Human communication is made up of 2 components: verbal and non-verbal. The verbal component makes up only 7% of the communicated message. 93% of our communication is not what we say, but how we say it

Why does non-verbal communication play such a large role in communication? On average, most people speak at 140-160 words per minute. Yet, we hear at between 400-500 words per minute. The interval between the speaking and the hearing is made up of visual or non-verbal messages.

Non-Verbal Communication

Non-verbal communication has some unique characteristics, which include the following:

1. It tends to be ambiguous.

2. It is continuous.

3. It is multi-channeled

4. It is unconscious

5. It is culturally determined and gender defined.

Non-verbal communication is made up of 2 components, paralanguage and body language.

Paralanguage - How Something Is Said

Paralanguage makes up 28% of the communicated message and focuses on 2 areas; voice characteristics and vocal interference. There are 4 distinct voice characteristics that make up paralanguage:

1. ***Pitch (highness/lowness)***. We all have a unique, natural pitch with a range of about 2 octaves. Most of us, however, use only 2-3 notes within this natural range. The lack of range is one reason why there is a tendency towards poor listening habits. In addition, overtime, many of us have learned to manipulate that pitch in order to affect the message we communicate.

1. ***Volume (loudness)***. Every person, regardless of physical size, can make the voice louder. Volume is increased by contracting the abdominal muscles, which in turn increases the pressure pushing air up out of the breathing passage past the voice box. Many people use volume to make up for a perceived lack in physical size while others use it to reinforce size. Both are further examples of how we manipulate paralanguage

2. ***Rate (speed/pace)***. The usual rate of speed for normal conversations is 140-160 words per minute. While pace is an individual choice, it is important to remember that the pace you set impacts how another person hears what you are saying; understands your word choice and their attached meaning; and how well he/she utilizes the message as a precursor to their own action.

4. ***Quality (tone)***. The sound of your voice is indicative of its quality. The best vocal quality is clear and "easy on the ears". Variations in pitch, rate and volume also impact vocal quality. The emotional state of mind of the message sender also can impact vocal quality. As listeners, we often assign stereotypical labels based on the quality of the message received.

Vocal Interference - The Other Paralanguage Issue

Vocal interference is that part of the verbal message that has crossed over into the realm of paralanguage. It is a visible sign of a growing laziness in terms of communication skills in North America.

Vocal interference results from a *fear of momentary silence*. We have been taught it is impolite to interrupt - until the flow of sound stops. Many people need time to connect thoughts to words. In order to prevent dead air time, people fill in the spaces with "words" such as 'uh', 'like', 'er'. Media and other venues have promoted the rapid increase of vocal interference. Unfortunately, since vocal interference is often used as a form of 'cultural' acceptance, it largely goes uncorrected and ends up becoming a very bad verbal habit and an integral part of our overall communication pattern.

Body Language - The Biggest Slice of The Communication Pie!

Body language or body motion makes up 65% or 2/3 of any communication transaction! Body language us usually made up of eye contact, facial expression and gestures. Body language serves several functions within the communication process. The major uses are:

1. To take the place of words/phrases.

2. To complement speech.

3. To augment verbal expressions of emotion.

4. To control the flow of conversation.

5. To relieve physical tension.

6. The greatest use most cultures assign to body language is the definition of personal space. In North America, there are usually 4 levels of "people" space:

1. Intimate - 16" to 18".
2. Personal - 18" to 4'.
3. Social - 4' to 12'.
4. Public - 12' plus.

Body language is not something we can take or leave - it is a part of the human condition. We are born with body language. Body language does not lie. Because they tend to use body language more when they talk, women are considered to be better readers of body language than are men. And, as stated previously, body language is defined by culture and the gender of the speaker and listener.

Communication Power

How, you may ask, does the concept of power fit into discussions of communication, paralanguage and body language? It all relates to the guidelines mentioned earlier in the session and how we use each of the communication components in combinations.

The control of power within any communication transaction is often done by choice; often it is not. There are 2 kinds of power relationships in conversation:

1. **Complementary or "one down" communication**. In a complementary communication transaction, one person consistently gives up the "speaking floor" to another. They chose (or have no choice) to assume a powerless one down position and speak accordingly. A conversation between a supervisor and workers, or between workers, where one acquiesces her or his position within the

group to the more verbally dominant person is an example of complementary power.

2. **Symmetrical or equal status communication.** In a symmetrical communication transaction, each speaker has equal status. The focus of power is not constant, but is traded back and forth. Not only does the focus of power shift in such situations, but often the speech patters change as well. A lively back and forth discussion is a good example of symmetrical power.

Power Talk

To become an effective communicator, you should learn the "rules of thumb" about ***Power Talk***.

1. **Understand the role of power in conversation**. Determine the hierarchical situation for any given conversation.

2. **Always present your information from the audience's perspective**.

3. **Focus**. Use the "know" rule.

4. **Work at changing weak communication habits**. Avoid using powerless language.

In business, it is easy to slip into a powerless situation conversationally just through the choice of words brought into the conversation.

Hedges -

Hesitations -

Intensifiers -

Polite Forms -

Tag Questions -

Disclaimers -

5. **Use assertive non-verbal communication.**

6. **Feel/act/sound and look confident and competent.**

The Effective Merging of Powerless and Powerful Communication

Communication theorists consider women to use more powerless conversation than their male counterparts because they use communication to achieve consensus; use more non-verbals; have differing vocal traits and some perpetual bad habits such as using tag endings. Men are perceived as using over-powering communication in that they usually communicate to assert an opinion; tightly control their use of non-verbals; limit their vocal output and have the bad habit of taking over conversations, especially in mixed company.

Effective powerful communication in business and elsewhere means taking the best of both sets of communication habits and merging them into ***Power Talk***.

- Power Talk is characterized as being clear, concise and concrete.

- Non-verbals are use efficiently and effectively.

- Effective listening becomes a part of the communication transaction. Effective listening puts the focus of the conversation squarely on the speaker - and on you, the listener. ***It is Powerful Conversation.***

Conclusion

Understanding the communication process and how you influence it positively or negatively will go a long way in helping you become a powerful communicator. However, since you learned all of your communication skills over a considerable period of time, do not expect changes overnight. It will be necessary to consciously work at correcting poor communication habits and bringing new communications skills into your conversational repertoire. You will have to practice to become an effective communicator. The positive outcomes will speak for themselves. It certainly beats going through life with someone, somewhere saying ***Don't Look At Me In That Tone Of Voice***!

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Appendix F

Recall Indicator – Test 1

Registration Questionnaire

Subject Identification Number: 99 - 06 - 08 - [ ] [ ] [ ] - [ ]
The test has been designed to record your ability to recall information based on a prescribed presentation delivery system.

Answer all the questions in the space provided.

1. Name one of the types of registration processes currently available:

_____.

2. Identify two protocols to observe for e-mail registration:

1. _____

2. _____

3. Is a post-event evaluation of the registration process a valuable exercise and why? _____

_____

_____

_____

_____

4. What is the critical element that determines how much of the registration process will be outsourced?

_____

5. Name two of the management processes inherent in the registration process.

1. _____ 2. _____

6. Outline the basic steps in the registration process:

_____

_____

_____

_____

_____

7. What is the major advantage of using e-mail as a registration process?

_____

8. Name two of the elements used to create a well-balanced, user friendly web site

1. _____ 2. _____

9. Identify at least three kinds of information and/or questions that should be included in a Request For Proposal (RFP) for outsourcing registration processes.

_____

_____

_____

_____

10. Name two types of information event management should provide on any registration form regardless of format.

1. _____

2. _____

11. A well trained and efficient registration clerk using an enhanced registration system should be able to process _____ delegates per hour.

12. List some of the basic guidelines to use when developing an on-line registration process.

_____

_____

_____

_____

13. Identify two criteria that help to determine the design/layout of a registration area.

1. _____

2. _____

14. What role do the financial and accounting processes play in the development and operation of a registration system?

_____

_____

_____

_____

15. What is one of the major uses of name badges at an exposition?

_____

Thank you for completing the Registration Questionnaire

Appendix G

Recall Indicator – Test 2

Registration Questionnaire

Subject Identification Number: 99 - 06 - 10 - [ ] [ ] [ ] - [ ]
The test has been designed to record your ability to recall information based on a prescribed presentation delivery system.

Answer all the questions in the space provided.

1. What is the major advantage of using e-mail as a registration process?

_____

2. List some of the basic guidelines to use when developing an on-line registration process.

_____

_____

_____

_____

3. Name two types of information event management should provide on any registration form regardless of format.

1. _____

2. _____

4. Identify two protocols to observe for e-mail registration:

1. _____

2. _____

5. Identify two criteria that help to determine the design/layout of a registration area.

1._____

2. _____

6. What role do the financial and accounting processes play in the development and operation of a registration system?

_____

_____

_____

7. Identify at least three kinds of information and/or questions that should be included in a Request For Proposal (RFP) for outsourcing registration processes.

_____

_____

_____

_____

8. What is the critical element that determines how much of the registration process will outsourced?_____

9. What is one of the major uses of name badges at an exposition?

_____

10. Outline the basic steps in the registration process:

_____

_____

_____

_____

11. Name two of the elements used to create a well-balanced, user friendly web site. 1. _____ 2. _____

12. Name two of the management processes inherent in the registration process.

1. _____ 2. _____

13. Name one of the types of registration processes currently available:

_____

14. A well trained and efficient registration clerk using an enhanced registration system should be able to process _____ delegates per hour.

15. Is a post-event evaluation of the registration process a valuable exercise and why? _____

_____

_____

_____

_____

Thank you for completing the Registration Questionnaire

Appendix H

Perceptual Modality Indicator

Subject Identification Number: 00-10-31-[ ] [ ] [ ] [ ] T [ ] G [ ]TG

Read the words in the left column and circle the description that best expresses how you usually handle each situation.

When You	Visual	Auditory	Kinesthetic & Tactile
Spell	Do you try to see the word	Sound out the word, or use a phonetic approach?	Write the word down to find if it feels right?
Talk	Talk sparingly, but dislike listening for too long? Do you favor words such as *see*, *picutre*, and *imagine*	Enjoy listening, but are impatient to talk? Use words such as *hear*, *tune*, and *think*.	Gesture and use expressive movements? Use words such as *feel*, *touch*, and *hold?*
Visualize	Do you see vivid, detailed pictures?	Think in sounds?	Have few images, all involving movement?
Concentrate	Do you become distracted by untidiness or movement?	Become distracted by sounds or noises?	Become distracted by activity around you?
Meet someone again	Do you forget names, but remember faces? Remember where you met?	Forget faces, but remember names? Remember what you talked about?	Remember best what you did together?
Contact people on business	Do you prefer direct, face-to-face, personal meetings?	Prefer the telephone?	Talk with them while walking or participating in an activity?
Relax	Do you prefer to watch TV, a play, or movie?	Prefer to listen to the radio, music or read?	Prefer action stories or are not a keen reader?
Try to interpret someone's mood	Do you primarily look at facial expressions?	Listen to tone of voice?	Watch body movement?
Read	Do you like descriptive scenes? Pause to imagine the action?	Enjoy dialogue and conversation, or hear the characters talk?	Prefer action stories or are not a keen reader?

Do something new	Do you like to see demonstrations, diagrams, slides or posters?	Prefer verbal instructions or talking about it with someone else?	Prefer to jump right in and try it?
Put something together	Do you look at the directions and the picture?	Like to talk with someone or find yourself talking out loud as you work?	Ignore the directions and figure out as you go along?
Need help with a computer application	Do you seek out pictures or diagrams?	Call the help-desk, ask a neighbor, or growl at the computer?	Keep trying to do it or try it on another computer?
Teach someone	Do you prefer to show them?	Prefer to tell them?	Do it for them and let them see how it's done or ask them to try it?

Thank you for completing the Perceptual Modality Indicator.

Appendix I

Individual Statistical Summary

The purpose of this research project is to determine the significance of learning materials, i.e., printed handouts, on the recall and/or retention of information during a convention education seminar presentation.

This statistical summary will take approximately 6 minutes to complete. Please answer all questions. Return the completed summary to the session facilitator prior to the beginning of the session.

All information will be kept strictly confidential. Data collected will be used as part of a Doctorate in Adult Education Dissertation research project. All data will be destroyed at the conclusion of the project.

1. What was your age (in years) on your last birthday? _____.
2. What is the highest level of formal education completed:

   [ ] high school

   [ ] community college

   [ ] undergraduate degree

   [ ] master's degree

   [ ] doctorate

3. What was the **primary** reason for enrolling in the continuing education program you are now taking?

   [ ] general interest

   [ ] personal development

   [ ] voluntary professional/career development

   [ ] mandated professional/career development

   [ ] other

4. How many continuing education programs (a program is defined as a single session) have you completed since January 1, 2000

   [ ] One [ ] Two [ ] Three [ ] Four or more

5. Who was the **primary** provider of the continuing education sessions taken since January 1, 2000?

List in order , for example 1, 2, 3 based on the number of courses taken in each situation

[ ] community college
[ ] employer
[ ] private seminar company
[ ] professional or business association
[ ] university (credit courses)
[ ] university extension service (non credit)
[ ] other

6. How many continuing education programs (a single session) do you plan to complete in the next 6 months?

[ ] One [ ] Two [ ] Three [ ] Four or more

7. Who will most likely be the **primary** provider of the continuing education sessions you plan to take in the next 6 months? List in order , for example 1, 2, 3 based on the number of courses you plan to take.

[ ] community college
[ ] employer
[ ] private seminar company
[ ] professional or business association
[ ] university (credit courses)
[ ] university extension service (non credit)
[ ] other

8. Are you a member of a business or professional association?

[ ] Yes [ ] No

9. What are the **primary** reasons you joined a business or professional association? List in order of priority, for example 1, 2, 3 etc.,

[ ] business contacts
[ ] continuing education
[ ] personal member benefits: please specify _____
[ ] other: _____

Appendix J

Individual Experience Summary

Subject Identification Number: 99 - 06 - 08 - [ ] [ ] [ ] - [ ]

The purpose of this research project is to determine the significance of learning materials, i.e., printed handouts, on the recall and/or retention of information during a convention education seminar presentation.

This experience summary will take approximately 6 minutes to complete. Please answer all of the questions. Return the completed summer to the session facilitator prior to the beginning of the session.

All information will be kept strictly confidential. Data collected will be used as part of a Doctorate in Adult Education Dissertation research project. All data will be destroyed at the conclusion of the project.

1. How long have you been employed in the exposition industry:

   [ ] less than 1 year [ ] 1 - 3 years [ ] 4 - 5 years

   [ ] 6 - 7 years [ ] 8 - 10 years [..] more than 10 years

2. Indicate which of the following terms **best** describes your current job position (list only 1 choice)

   [ ] exposition manager [ ] association manager [ ] registration mgr.

   [ ] service contractor [ ] registration contractor

   [ ] expo registration staff [ ] association registration staff

   [ ] other: _____

3. How long have you been employed in the position listed in Question 2 above?

   [ ] less than 1 year [ ] 1 - 3 years [ ] 4 - 5 years

   [ ] 6 - 7 years [ ] 8 - 10 years [ ] more than 10 years

4. Have you received any employer-sponsored training in the area of registration while in your current employment position?

   [ ] Yes [ ] No

   List training received: _____

5. Other than the IAEM Registration Module for which you have registered, have you taken any other continuing education courses that relate specifically to exposition/convention registration processes?

[ ] Yes [ ] No

List courses taken: _____

_____

6. Indicate what other types of continuing education training you have taken in the past 12 months.

[ ] Project Management

[ ] Computerized Registration Processes

[ ] On-Line Registration Processes

[ ] General Sales and Marketing

[ ] Attendance Marketing

[} Marketing on the World Wide Web

[ ] Creating Exposition/Convention Web Sites

[ ] International Event Marketing

[ ] Personal Development: _____

[ ] Professional Development _____

[ ] Other: _____

[ ] No courses taken

Thank you for completing the Experience Summary