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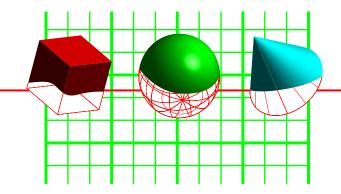
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Introduction

The **Virtual Reality Modeling Language** (VRML) is a language for describing multiparticipant interactive simulations -- virtual worlds networked via the global Internet and hyperlinked with the World Wide Web. All aspects of virtual world display, interaction and internetworking can be specified using VRML. It is the intention of its designers that VRML become the standard language for interactive simulation within the World Wide Web.

The first version of VRML allows for the creation of virtual worlds with limited interactive behavior. These worlds can contain objects which have hyperlinks to other worlds, HTML documents or other valid MIME types. When the user selects an object with a hyperlink, the appropriate MIME viewer is launched. When the user selects a link to a VRML document from within a correctly configured WWW browser, a VRML viewer is launched. Thus VRML viewers are the perfect companion applications to standard WWW browsers for navigating and visualizing the Web. Future versions of VRML will allow for richer behaviors, including animations, motion physics and real-time multi-user interaction.

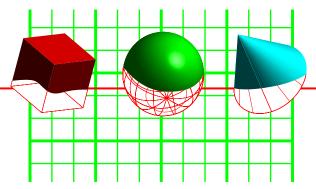
This document specifies the features and syntax of Version 1.0 of VRML.

VRML Mission Statement

The history of the development of the Internet has had three distinct phases; first, the development of the TCP/IP infrastructure which allowed documents and data to be stored in a proximally independent way; that is, Internet provided a layer of abstraction between data sets and the hosts which manipulated them. While this abstraction was useful, it was also confusing; without any clear sense of "what went where", access to Internet was restricted to the class of sysops/net surfers who could maintain internal cognitive maps of the data space.

Next, Tim Berners-Lee's work at CERN, where he developed the hypermedia system known as **World Wide Web**, added another layer of abstraction to the existing structure. This abstraction provided an "addressing" scheme, a unique identifier (the Universal Resource Locator), which could tell anyone "where to go and how to get there" for any piece of data within the Web. While useful, it lacked dimensionality; there's no *there* there within the web, and the only type of navigation permissible (other than surfing) is by direct reference. In other words, I can only tell you how to get to the VRML Forum home page by saying, "http://www.wired.com/", which is not human-centered data. In





fact, I need to make an effort to remember it at all. So, while the World Wide Web provides a retrieval mechanism to complement the existing storage mechanism, it leaves a lot to be desired, particularly for human beings.

Finally, we move to "perceptualized" Internetworks, where the data has been sensualized, that is, rendered sensually. If something is represented sensually, it is possible to make sense of it. VRML is an attempt (how successful, only time and effort will tell) to place humans at the center of the Internet, ordering its universe to our whims. In order to do that, the most important single element is a standard that defines the particularities of perception. Virtual Reality Modeling Language is that standard, designed to be a *universal description language for multi-participant simulations*.

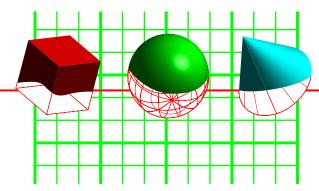
These three phases, storage, retrieval, and perceptualization are analogous to the human process of consciousness, as expressed in terms of semantics and cognitive science. Events occur and are recorded (memory); inferences are drawn from memory (associations), and from sets of related events, maps of the universe are created (cognitive perception). What is important to remember is that the map is **not** the territory, and we should avoid becoming trapped in any single representation or world-view. Although we need to *design to avoid disorientation*, we should always push the envelope in the kinds of experience we can bring into manifestation!

This document is the living proof of the success of a process that was committed to being open and flexible, responsive to the needs of a growing Web community. Rather than reinvent the wheel, we have adapted an existing specification (Open Inventor) as the basis from which our own work can grow, saving years of design work and perhaps many mistakes. Now our real work can begin; that of rendering our noospheric space.

History

VRML was conceived in the spring of 1994 at the first annual World Wide Web Conference in Geneva, Switzerland. Tim Berners-Lee and Dave Raggett organized a Birds-of-a-Feather (BOF) session to discuss Virtual Reality interfaces to the World Wide Web. Several BOF attendees described projects already underway to build three dimensional graphical visualization tools which interoperate with the Web. Attendees agreed on the need for these tools to have a common language for specifying 3D scene description and WWW hyperlinks -- an analog of HTML for virtual reality. The term Virtual Reality Markup Language (VRML) was coined, and the group resolved to begin specification work after the conference. The word 'Markup' was later changed to 'Modeling' to reflect the graphical nature of VRML.

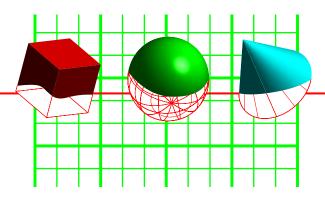




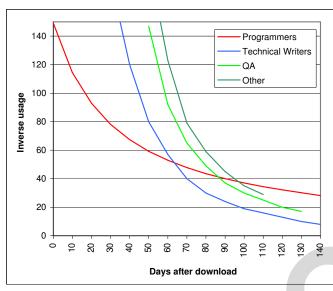
Shortly after the Geneva BOF session, the www-vrml mailing list was created to discuss the development of a specification for the first version of VRML. The response to the list invitation was overwhelming: within a week, there were over a thousand members. After an initial settling-in period, list moderator Mark Pesce of Labyrinth Group announced his intention to have a draft version of the specification ready by the WWW Fall 1994 conference, a mere five months away. There was general agreement on the list that, while this schedule was aggressive, it was achievable provided that the requirements for the first version were not too ambitious and that VRML could be adapted from an existing solution. The list quickly agreed upon a set of requirements for the first version, and began a search for technologies which could be adapted to fit the needs of VRML.

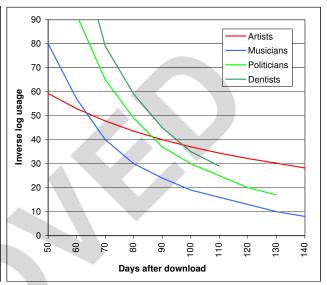
The search for existing technologies turned up a several worthwhile candidates. After much deliberation the list came to a consensus: the Open Inventor ASCII File Format from Silicon Graphics, Inc. The Inventor File Format supports complete descriptions of 3D scenes with polygonally rendered objects, lighting, materials, ambient properties and realism effects. A subset of the Inventor File Format, with extensions to support networking, forms the basis of VRML. Gavin Bell of Silicon Graphics has adapted the Inventor File Format for VRML, with design input from the mailing list. SGI has publicly stated that the file format is available for use in the open market, and have contributed a file format parser into the public domain to bootstrap VRML viewer development.





A Graphical Representation of Inverse VRML Uptake





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1 The number 1 represents an engineer with an "average" cube *

CF	Min	fsw	Air	EANx 32%	EANx 36%
80.0	149.12	0			
61.4	114.43	10			
49.8	92.846	20			
41.9	78.102	30	180		
36.2	67.402	40	120		
31.8	59.275	50	80.0	147.0	192.0
28.4	52.9	60	57.0	92.0	123.0
25.6	47.774	70	40.0	65.0	79.0
23.4	43.543	80	30.0	49.0	59.0
21.5	40.001	90	24.0	37.0	45.0
19.9	37	100	19.0	30.0	35.0
18.5	34.409	110	16.0	25.0	29.0
17.3	32.154	120	13.0	20.0	n/a
16.2	30.178	130	10.0	17.0	n/a
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...continued from page 1. Yet more text. And more text. Oh, how boring typing this stuff. But not as boring as watching paint dry. And more text. And more text. And more text. And more text. Boring. More, a little more text. The end, and just as well.



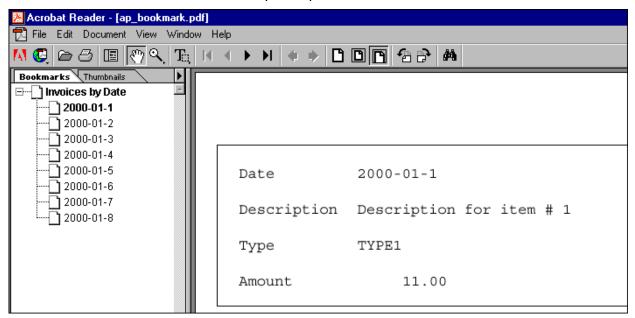
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Sample Date:	May 2001	
Prepared by:	Accelio Present Applied Technology	
Created and Tested Using:	Accelio Present Central 5.4	
	Accelio Present Output Designer 5.4	
Features Demonstrated:	Primary bookmarks in a PDF file.	
	Secondary bookmarks in a PDF file.	

Overview

This sample consists of a simple form containing four distinct fields. The data file contains eight separate records.

By default, the data file will produce a PDF file containing eight separate pages. The selective use of the bookmark file will produce the same PDF with a separate pane containing bookmarks. This screenshot of the sample output shows a PDF file with bookmarks.



The left pane displays the available bookmarks for this PDF. You may need to enable the display of bookmarks in Adobe® Acrobat® Reader by clicking **Window > Show Bookmarks**. Selecting a date from the left pane displays the corresponding page within the document.

Note that the index has been sorted according to the specification in the bookmark file, and that pages within the file are created according to the original order in the data file.

PDF Bookmark Sample Page 1 of 4



Sample Data File

^reformat trunc ^symbolset WINLATIN1 ^field trans_date 2000-01-1 ^field description Description for item #1 ^field trans type TYPE1 ^field trans_amount 11.00 ^page 1 ^field trans_date 2000-01-2 ^field description Description for item #2 ^field trans_type TYPE2 ^field trans_amount 11.00 ^page 1 ^field trans_date 2000-01-3 ^field description Description for item #3 ^field trans type TYPE3

Sample Bookmark File

[invoices]
Invoices by Date=0
trans_date=1,A
[type]
Invoices by Item Type=0
trans_type=1,A
[amount]
Invoices by Transaction Amount=0
trans_amount=1,D

The example bookmark file includes three distinct sections:

- Invoices sorted, ascending, by date.
- Invoices sorted, ascending, by item type.
- Invoices sorted, descending, by transaction amount.

PDF Bookmark Sample Page 2 of 4



Sample Files

This sample package contains:

Filename	Description
ap_bookmark.IFD	The template design.
ap_bookmark.mdf	The template targeted for PDF output.
ap_bookmark.dat	A sample data file in DAT format.
ap_bookmark.bmk	A sample bookmark file.
ap_bookmark.pdf	Sample PDF output.
ap_bookmark_doc.pdf	A document describing the sample.

Deploying the Sample

To deploy this sample in your environment:

- 1. Open the template design **ap_bookmark.IFD** in Output Designer and recompile the template for the appropriate presentment target.
- 2. Modify the **-z** option in the **^job** command in the data file **ap_bookmark.dat** to:
 - Identify the target output device.
 - Identify the bookmark file using the **-abmk** command.
 - Identify the section for which to generate bookmarks, if desired, using the **-abms** command.

For example,

To bookmark by	Use the command line parameter
Invoices	-abmkap_bookmark.bmk -abmsinvoices
Туре	-abmkap_bookmark.bmk -abmstype
Amount	-abmkap_bookmark.bmk -abmsamount

PDF Bookmark Sample Page 3 of 4



- 3. Place the accompanying files in directories consistent with your implementation:
 - Place ap_bookmark.IFD in the Designs subdirectory for Output Designer.
 - Place ap_bookmark.mdf in the forms subdirectory accessible to Central.
 - Place ap_bookmark.bmk in an addressable directory.

Running the Sample

To run this sample, place ap_bookmark.dat in the collector directory scanned by Central.

PDF Bookmark Sample Page 4 of 4

Sample Report

A Formal Report

THE EFFECTS OF STRESS ON BUSINESS EMPLOYEES AND PROGRAMS OFFERED BY EMPLOYERS TO MANAGE EMPLOYEE STRESS

Prepared for

Dr. Robert J. Olney Southwest Texas State University

Prepared by

Charles Dishinger Nancy Howard Bill Kiagler Sherry Seabrooke Donna Tucker

November 29, 20--

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Sample Reports

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The Effects of Stress on Business Employees
and Programs Offered by Employers
to Manage Employee Stress

Section I

Introduction to the Study

Introduction

Today, many organizations and employees are experiencing the effects of stress on work performance. The effects of stress can be either positive or negative. What is perceived as positive stress by one person may be perceived as negative stress by another, since everyone perceives situations differently. According to Barden (2001), negative stress is becoming a major illness in the work environment, and it can debilitate employees and be costly to employers. Managers need to identify those suffering from negative stress and implement programs as a defense against stress. These programs may reduce the impact stress has on employees' work performance.

Statement of the Problem

The purpose of this study was to determine the negative effects of stress on employees and the methods employers use to manage employees' stress.

Significance of the Study

There are three primary groups that may benefit from this study. The first group, consisting of employees in today's business organizations, may learn to identify ways that stress negatively affects their work performance. Identifying the negative effects may enable them to take necessary action to cope with stress. By sharing this knowledge, employees can act as a vehicle to help management implement appropriate stress reduction programs. The second group that may benefit from this study is employers who may gain insight as to how stress is actually negatively affecting

employees' work performance. Finally, educators can use these findings as a valuable guide to incorporate into their curriculum. By emphasizing to students the importance of developing programs to deal with stress, the students may be able to transfer this knowledge to the workplace, thereby improving the quality of the work environment.

Scope of the Study

This study was limited to the perceptions of full-time business employees as to the negative effects that stress has on work performance and the steps that employers are taking to manage stress. For the purpose of this study, what constitutes full-time employment is defined by the employer. This study was restricted to businesses operating in the Central Texas area. The Central Texas area encompasses all communities within Hays, Kendall, Travis, and Williamson counties. For the purpose of this study, stress is defined as disruptive or disquieting influences that negatively affect an individual in the workplace. Data for this study were collected during the fall of 2002.

Review of Related Literature

Barden (2001), a freelance writer specializing in health care and a former managing editor of *Commerce and Health*, stated the importance of wellness programs and gave specific examples of corporations that are successfully implementing such programs. The Morrison Company currently saves \$8.33 for every dollar spent on wellness by offering programs such as weight loss, exercise, and back care. Axon Petroleum estimates that wellness programs will save \$1.6 million each year in health care costs for its 650 employees. In addition to Morrison and Axon Petroleum, Barden cited the savings for six other companies. According to the Wellness Bureau of America, the success of these companies offers concrete proof that wellness programs pay off by lowering health care costs, reducing absenteeism, and increasing productivity.

Foster (2002), a professional speaker on stress-management, surveyed midlevel managers and found stress to be a major determinant in worker productivity. According to the study, the primary areas affected by stress are employee morale, absenteeism, and decision making abilities. By recognizing that a problem exists and by addressing the issue, managers can reduce stressful activities and increase worker performance in the business organization.

Harrold and Wayland (2002) reported that increasing stress affects morale, productivity, organizational efficiency, absenteeism, and profitability for both individuals and the organization. The problem for businesses today is knowing how

to determine stressful areas in their organizations and how to use constructive confrontation methods to reduce stress and improve efficiency. According to the authors, organizations that make a positive effort to deal with stress not only help build trust among their employees, but also increase the productivity of their employees and the organization as a whole.

Maurer (2002) stated that stress-induced illnesses are prevalent in the workplace today, and stress is the problem of the sufferer and the employer. Stress causes absenteeism and can lead to other problems such as drug addiction, alcoholism, depression, and poor job performance. According to Maurer, the annual Barlow Corporation Forum on Human Resource Issues and Trends reported that large numbers of companies noticed severe levels of stress exhibited by employees. The forum's panelists agreed that more needed to be done in the workplace to help employees manage stress. Some of the suggestions were to expand wellness programs, offer stress-management seminars, and teach staff how to balance work and family life. Maurer also noted that Olympic TeamTech, a computer management company, has dealt with employee stress by providing training programs, monitoring employee concerns, and meeting once a month to be proactive instead of reactive. Olympic TeamTech's turnover is less than the industry average.

Schorr (2001), a stress-management consultant, stated that stress causes problems in the workplace which negatively affect employee health and organizational productivity. Stress can lead to problems such as job dissatisfaction, alcoholism, absenteeism, physical ailments, and poor job performance. If managers know how to prevent and cope with stress, productivity can be increased. Many companies instituted stress-management programs that led to a decline in absenteeism, a decrease in sickness and accident costs, and/or an increase in job performance. Schorr reported that a stress inventory, available from a stress-management program, can assist executives and managers in assessing employee stress. The inventory can identify the sources of stress, which may include physical elements as well as other factors. Once these sources have been assessed, the program can provide the necessary skills for coping with the problems, and participants can learn that there are alternative ways of reacting to stress.

Methods of the Study

Source of Data

Data for this study were collected using a questionnaire developed by a group of students at Southwest Texas State University. The questionnaire was divided into

three parts. Part one consisted of a list of 15 work performance areas that may be negatively affected by a person's level of stress. Respondents were asked to indicate whether stress increased, decreased, or had not changed their work performance in each area. They were also asked to indicate from the list of 15 work performance areas the area that was the most negatively affected by stress and the area that was the least negatively affected by stress. In the second part of the questionnaire, a list of 17 programs was provided and the respondents were asked to indicate which programs their companies had implemented to manage stress. Part three was designed to collect demographic data for a respondent profile, including full-time employee classification and age group. A copy of the questionnaire is contained in Appendix A on page 12.

Sample Selection

The respondents involved in this survey were employees working in companies located in Central Texas. A nonprobability, convenience sampling technique was used to collect primary data. Each member of the research team was responsible for distributing three questionnaires to members of the sample. To ensure confidentiality, respondents were given self-addressed, stamped envelopes in which to return their completed questionnaires to Southwest Texas State University. Controls were used to eliminate duplication of the responses.

Statistical Methods

Simple statistical techniques were used to tabulate the results of this study. The primary data were analyzed using a percent of response. To compute the percent of response, the number of responses to each choice was divided by the total number of respondents who answered the question. In question one, the percents of responses for the negative effects of stress on the 15 work performance areas were reported. The results of the next two questions were tabulated by totaling the number of respondents who chose an area they believed was least or most affected by stress. The fourth question reported the percent of respondents whose employers offered the listed programs to manage stress. Questions five and six asked the respondents to indicate if they were considered full-time employees and to indicate their age group.

Limitations of the Study

This study may be limited through the use of a questionnaire as a data collection instrument. Because questionnaires must generally be brief, areas that may have been affected by stress may not have been included in the questionnaire.

Also, all programs that may be available to employees for managing stress may not have been included in the study. The study may also be limited by the use of a nonprobability, convenience sampling method. The sample of business employees for the study was chosen for convenience and may not be representative of the total population of business employees. Care should be taken when generalizing these findings to the entire population. Finally, the use of simple statistical techniques may introduce an element of subjectivity into the interpretation and analysis of the data. All attempts have been made to minimize the effects of these limitations on the study.

Section II

Findings, Conclusions, and Recommendations

Introduction

This study was designed to determine the effects of stress on employees and to discover methods employers use to manage employees' stress. Sixty questionnaires were distributed to business employees in the Central Texas area, and the response rate was 78.3%. This section includes the Findings, Conclusions, and Recommendations.

Findings

The findings will be presented in three sections according to the following characteristics: Demographic Profile, Areas of Job Performance Affected by Stress, and Programs Employers Offer Employees to Manage Stress.

Demographic Profile

All returned responses from the sample were considered full-time employees by their employers. The respondents were also asked to indicate their age group; all age ranges were represented in the results, as shown in Figure 1. The breakdown consisted of 2.1% under the age of 20, 33.7% between 20 and 29, 29.4% between the ages of 30 and 39, 26.1% between 40 and 49, 5.4% between 50 and 59, and 3.3% were 60 and over.

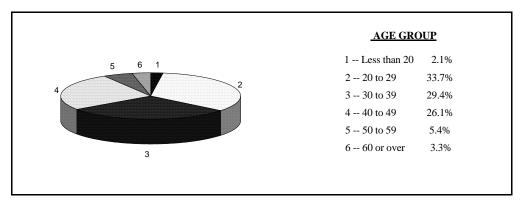


Figure 1: Age Distribution of Respondents

Areas of Job Performance Affected by Stress

The respondents were given a list of work performance areas that might be affected by stress and were asked to identify whether stress increased, decreased, or had no change on their work performance. Only respondents who indicated stress negatively affected an area were considered in these findings. Of the 15 areas listed, four areas were identified as having a response rate of more than 50.0%. These areas were as follows: job satisfaction/morale (73.9%), courtesy (65.2%), accuracy (52.7%), and creativity (51.6%). Similarly, Schorr (2001) stated that a significant number of employees' creativity is negatively affected by stress. Also, Harrold and Wayland (2002) agreed that morale is strongly affected by stress.

Falling within the range of a 30.0 to 50.0% response rate were cooperation (49.5%), organizational skills (46.3%), initiative (45.2%), productivity (42.8%), alertness (39.4%), decision making abilities (39.1%), and perseverance (35.5%). Harrold and Wayland (2002) established that increasing stress and anxiety are having a negative influence on an individual's organizational efficiency and productivity.

The findings that negatively affect work performance are shown in Figure 2.

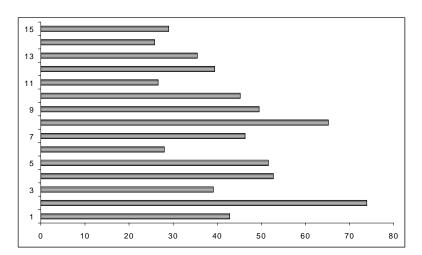
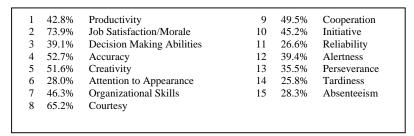


Figure 2: Negative Effects of Stress on Work Performance



Central Texas employees indicated the area they believed was most affected by stress and the area they believed was least affected by stress. According to the results, job satisfaction and productivity were thought to be most affected by stress. On the other end of the scale, areas least affected by stress were personal appearance and absenteeism. However, Schorr's (2001) study found that, on the average, individuals experiencing stress are more inclined to be absent or tardy.

Programs Employers Offer Employees to Manage Stress

Question four listed 17 programs offered by employers for managing stress. Respondents were asked to indicate which programs their companies had implemented to manage stress. The responses for each program are shown in Table 1.

Table 1: Programs Offered by Employers to Manage Stress.

TYPE OF PROGRAM	RESPONSES
Insurance	72%
Breaks	69.2%
Educational Assistance/Reimbursement	51.0%
Access for Disabled	42.6%
Alternate Schedule	34.0%
Employee Assistance Programs	34.0%
Wellness Programs	34.0%
Flextime	29.8%
Stress Management Seminars	29.8%
Training Programs	29.8%
Piped Music	17.2%
Assigned Parking	17.0%
Employee Empowerment Programs	17.0%
Ergonomically Correct Furniture	17.0%
Financial Counseling	8.5%
On-Site/Assistance with Child Care	4.3%

Insurance received the highest number of responses (72.0%), whereas, therapy received the lowest (2.1%). Playing classical music and creating a comfortable work environment were found by Foster (2002) to be low cost stress reduction programs. Although these are inexpensive programs to implement, a relatively small response rate was given for piped music (17.2%) and ergonomically correct furniture (17.0%). Maurer (2002) stated that it is necessary for companies to design programs that enable employees to assess stressful situations and develop a rational mode of behavior. In contrast to Maurer's research, only 17.0% of the respondents indicated that Employee Empowerment Programs are being offered by their employer. A response rate of 34.0% in the category of wellness programs/on-site fitness facilities was obtained. Barden (2001) reported programs that improve an individual's physical condition are both a positive and an effective method of managing stress.

The remaining methods for managing stress were varied. Listed in decreasing percentages, they are as follows: breaks (69.2%), educational assistance/reimbursement (51.0%), access for disabled (42.6%), alternative schedules (34.0%), Employee Assistance Programs (34.0%), Wellness Programs (34.0%) flextime (29.8%), stress management seminars/classes (29.8%), training programs (29.8%), assigned parking (17.0%), financial counseling (8.5%), and on-site/assistance with child care (4.3%).

Conclusions

On the basis of the findings, several conclusions concerning the effects of stress on Central Texas business employees can be drawn. The findings of this study indicated stress does negatively affect the work performance of employees.

Job satisfaction and productivity were indicated as two areas most affected by work-related stress. Therefore, stress cannot be considered just an individual issue because reduced job satisfaction and lower productivity has a direct effect on the company as a whole.

From this study, it can be concluded that employers have realized the importance of managing stress in the workplace because of the wide variety of programs now offered to manage stress.

Of all the programs offered by employers, insurance is the most frequently offered means for managing stress. Because insurance acts as a security net for employees and is offered the most, it can be inferred that employers contend that insurance is the most effective means for managing stress.

Recommendations

Based on the findings and conclusions in this study, the following recommendations are made:

- 1. Employers should offer various stress reduction programs to help employees manage stress because stress is prevalent in the workplace.
- 2. Employers should conduct a survey of the programs they already offer to discover which programs are the most effective for managing their employees' stress.
- 3. Employees should share their ideas for managing stress with their employers in order to help their employers implement appropriate stress reduction programs.
- 4. Educators should incorporate into their business curriculum discussions of stress in the workplace and ways to manage stress.
- 5. Additional research should be done. First, other areas negatively affected by stress should be studied to determine if stress affects other aspects of an employee's life. In addition, other factors should be examined to learn what the personal and work-related causes and symptoms of stress are for an individual.

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Appendix A

Questionnaire

The Effects of Stress on Business Employees

Students in the Graduate School of Business at Southwest Texas State University are conducting this survey to determine perceptions of the effects of stress on employees. The survey also is designed to determine efforts employers are making to help employees manage stress. Please return this questionnaire in the enclosed postage-paid envelope by Friday, November 8.

1. How does stress most often affect you at work? Please mark one response per line.

AREA AFFECTED	INCREA SE	DECREA SE	NO CHANGE
Productivity			
Job Satisfaction/Morale			
Absenteeism			
Decision Making Abilities			
Accuracy			
Creativity			
Attention to Personal Appearance			
Organizational Skills			
Courtesy			
Cooperation			
Initiative			
Reliability			
Alertness			
Perseverance			

	Sample Reports	
2.	Which one area from question 1 do you believe is most affected by stress?	13
3.	Which one area from question 1 do you believe is least affected by stress?	
4.	Which of the following means for managing stress does your employer offer? Please mark all that apply.	
	Employee Assistance Program	
	On-Site/Assistance with Child Care	
	Assigned Parking Employee Empowerment Programs	
	Employee Empowerment Programs Educational Assistance/Reimbursement	
	Breaks	
	Wellness Program/On-Site Fitness Facility	
	Financial Counseling	
	Access for Disabled	
	Stress Management Seminars/Classes	
	Training Programs	
	Therapy	
	Alternative Schedules (part-time, time off for family, etc.)	
	Flextime	
	Piped Music	
	Ergonomically Correct Furniture	
	Insurance (security net for employee/family)	
	Other (please specify)	
Note: Qu	estions 5 and 6 are included in this questionnaire as a means of developing a demographic profile of our respon	ıdents.
5.	Are you classified as a full-time employee by your employer?	
	YesNo	
6.	Please check your age group.	
	Less than 20 40 to 49	
	20 to 29 50 to 59	

Thank you for taking time to help us. We value your input.

__ 60 or over

__ 30 to 39