
Teleconferencing: A Viable Stress Management Delivery Mode

Bryan Hiebert

Beth Balshaw

University of Calgary

Abstract

Two sections of an upper level undergraduate course on professional stress and burnout were compared on a number of variables. One section of the course was delivered by interactive audio teleconferencing while the other section adopted a traditional on-campus classroom instructional mode. Results indicate that student academic achievement and satisfaction with the course was virtually identical for both delivery formats. Moreover, students in both delivery formats reported experiencing similar benefits from the course. There were no significant differences in the impact of the course on student stress levels, or the extent to which students applied concepts covered in the course to their personal stress management skill repertoires.

Résumé

Deux parties d'un cours de fins d'études au baccalauréat portant sur le stress professionnel et l'éxténuation (burnout) ont été comparés sur un nombre de variables. Une partie du cours était présentée par audio-téléconférence pendant que l'autre partie adoptait un mode d'instruction traditionnel à l'intérieur d'une classe du campus. Les résultats indiquent que la performance académique et le niveau de satisfaction des étudiants concernant le cours étaient virtuellement identiques pour les deux types de présentations. De plus, les étudiants des deux groupes ont rapporté avoir obtenu des bénéfices similaires à la suite du cours. Il n'y avait pas de différence significative sur l'impact du cours auprès des étudiants vis-à-vis leur niveau de stress, ou encore sur le niveau d'importance avec lequel les étudiants ont appliqué les concepts abordés dans le cours à l'intérieur de leur répertoire d'habiletés sur le contrôle du stress personnel.

Most people probably would agree that we live in an increasingly complex society where stress presents a growing social and personal health hazard (cf. Antonovsky, 1987; Moos, 1986; Rice, 1987). Accordingly, it is important for people to learn new skills for dealing with the changing and complex demands they face and to develop back-up skills for dealing with stress when the demands become overwhelming. In developing such skills, people living in remote areas are at a particular disadvantage for they do not have access to continuing education or the availability of self-study options as do their urban counterparts. By contrast, people living in urban centres have many options for learning stress control. For example, continuing education catalogues depict a wide variety of course offerings pertaining to stress and related problems, and book stores offer a wide selection of self-study titles to help people deal more effectively with stress. People living in remote areas have only their own resources to draw on in times of stress.

In response to this situation, we feel it is time for counsellors to explore other delivery systems for making stress control interventions more

available to people living in remote communities. This paper reports a field test of a distance delivery format for a course aimed at helping people understand the nature of stress and develop a more extensive repertoire of skills and knowledge to deal with stress-related problems.

METHODOLOGY

The purpose of the study was to explore the feasibility of using teleconferencing as a delivery medium for a senior undergraduate course in professional stress and burnout offered at a medium-sized Western Canadian university. Two sections of the course were used, one delivered on campus (OC) and one delivered via interactive audio teleconference (TC). TC students were from seven different small towns where access to regular university instruction was difficult or impossible. OC instruction took place in three 1-hour classes per week, while TC instruction took place in one 3-hour weekly class.

Course Description

Professional Stress and Burnout is a senior education option offered during a 13-week semester. The course is divided roughly into thirds. The first section compares different conceptual models of stress, covering early environmental models (Holmes & Rahe, 1967), response models (Selye, 1956, 1974), and transactional models (Lazarus, 1974, 1986; Lazarus & Folkman, 1984). This section concludes by suggesting that transactional models are more comprehensive and offer the greatest potential for developing interventions aimed at preventing or reducing stress (cf. Hiebert, 1983, 1988; Kasl, 1984; Lazarus, 1974, 1986; Lazarus & Folkman, 1984; Magnusson, 1982).

The second section of the course compares different models of burnout, including perspectives that view burnout as a syndrome resulting from chronic stress (Maslach, 1982a, 1982b), ecological models (Carroll, 1979; Carroll & White, 1982), and transactional models (Cherniss, 1980, 1982). The focus then turns to a discussion of the prevalence and health impact of chronic stress and burnout, patterned after Matteson and Ivancevich (1987).

The third section of the course, comprising approximately half of the course content, deals with controlling stress and burnout, using the comprehensive model for stress control advanced by Hiebert (1983, 1988) supplemented by sources describing various specific intervention strategies (Greenberg, 1984; Mason, 1980; Rice, 1987). Topics covered include: (a) *stressor management* procedures for dealing with the demands in one's life (e.g., exercise, nutrition, social support) and skill training to increase competence in dealing with common demands (e.g., time management, study and exam writing skills, parenting, interpersonal communication, assertiveness, classroom management) and (b) *stress*

management procedures for dealing with one's emotional reactions to demands, including physiological interventions (e.g., Transcendental Meditation, progressive relaxation, self-hypnosis), cognitive control strategies (e.g., thought stopping, positive self-talk, stress inoculation training, and cognitive restructuring), and behavioural strategies aimed at counteracting the "Hurry Up Syndrome" (Elck, 1985).

Course evaluation was identical for both OC and TC students. Each of the three sections of the course was followed by a 1-hour exam covering course content. Students also were required to write a term paper examining stress or burnout in an occupational group of their choice. For the term paper, TC students were able to access library literature searches and interlibrary loans via telephone, FAX, or mail. At the beginning of the course, students were given handouts identifying the topics and assigned readings for each class, describing the course evaluation procedure, the percentage-letter grade cut-off criteria, and the criteria against which the term paper would be graded.

The instructional format was kept as similar as possible for both OC and TC sections of the course. A class typically would begin with a review of the salient topics covered in previous classes followed by an overview of the topics to be covered in the current class. This was followed by an opportunity to clarify any concepts from the assigned readings or from previous classes. The topics for the day then were presented in a basic lecture format: (a) each construct would be introduced with an advance organizer or illustration to personalize the construct, (b) the construct would then be explained, and (c) there would be a summary, a pause for questions, and a transition to the next topic.

To ensure students understood and personalized the information being presented, they were encouraged to interject questions at any point during the lecture and the instructor was vigilant for puzzled looks and similar nonverbal cues signaling a need for further clarification. In addition, there was a formal pause for questions after each major topic within the lecture to make sure that students understood the constructs being presented and could relate them to their own personal experience. Each major section of the course ended with a general summary and review to consolidate student learning.

To promote student understanding and personalizing of the material in TC classes, and also to break up the 3-hour time block, a small group discussion was scheduled around the 50- and 100-minute marks in the class. In the small group discussion, 4-5 students from different locations were connected via audio bridge and asked to discuss questions pertaining to the content just presented. The questions ranged from general, e.g., "What is the part of the material just presented that you find personally most relevant or meaningful?", to more specific, e.g., "How do you see the three conceptualizations of stress just presented as being

similar to each other and how are they different?" Students were told that the discussions were a substitute for the nonverbal opportunities that "in person" instructors have to make sure students understand the concepts presented. In addition, the discussions would highlight areas in need of clarification.

Students began the discussion by introducing themselves, e.g., "Hello, this is Fred in Smallville," so that voices could be recognized and people could be addressed by name. The groups of students bridged together would be changed each week so that all students got an opportunity to interact with all other students. The instructor would listen in to each group of students, making notes of points that reflected accurate understanding and points needing clarification. When the discussion period was over, the instructor would use student examples to reinforce accurate understanding and to initiate further clarification, as appropriate. This procedure provided a reasonable substitute for the usual sort of personalization that happens both formally and informally in face-to-face instruction.

Sample

There were 11 males and 25 females registered OC ($n = 36$) and 2 males and 9 females registered TC ($n = 11$). The mean age for OC students was 27.0 years and 64% were 25 years of age or younger. The mean age of the TC students was 36.6 years, with 55% of the group older than 40 years. About 58% of the OC students were single, 39% married or cohabiting, and the rest were living apart from spouse. One TC student was living apart from spouse and the rest were married. About 64% of the OC students were working on their first degree, and most of them in a B.Ed. program, while 73% of the TC students already had a Bachelor's degree and were working toward a Diploma in Education. The two main reasons OC students cited for taking the course were wanting to learn more about stress management techniques (42%), and general interest (33%). Most TC students chose the course to help them complete a degree (56%).

Data Source

A questionnaire was designed to identify pertinent demographic characteristics, sources and levels of stress, and the ways students attempted to handle stress in their lives. To get an idea of fluctuating stress levels throughout the year, students were asked to rate their typical level of stress in each month in the year. As well, students were asked to rate the stress they experienced from work-related, non-work related, and total life sources. Full-time students were told to view their university experiences as the work-related experiences, and part-time students were told to view their regular jobs as work-related experiences. In a separate section, students were asked to rate how frequently they used certain

activities (e.g., relaxation techniques, exercise, support groups, watching television, alcohol, etc.) for the purpose of reducing stress. This questionnaire was administered at the beginning and end of the course.

RESULTS

Stress Levels

Monthly stress levels for the sample are depicted in Figure 1. As would be expected, higher stress levels are reported in September, December, and April, which coincide with beginning of term and examinations. The TC students also reported an increase in stress levels in June coinciding with the end of the school year. A Multivariate Hotelling's T^2 indicated no significant differences between the reports of OC and TC students. Significant correlations, $p < .05$, between pretest and posttest ratings of monthly stress levels suggest that people's recollections of monthly stress levels are quite consistent across time.

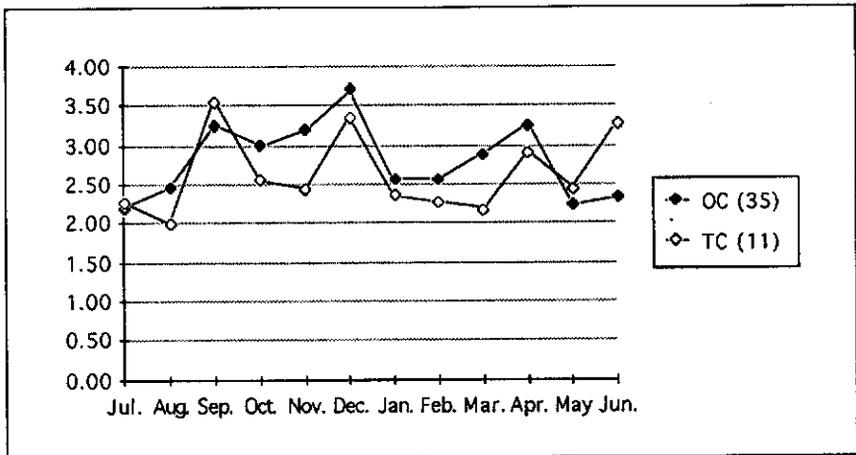


FIGURE 1

Perceived Level of Stress by Month at Pretest

Work and Non-Work Stress Levels

Generally speaking, these students reported moderate stress, with *Mean* stress levels ranging from 2.00 to 3.71. (See Table 1.)

TABLE 1
Mean Stress Levels from Various Sources

Source	<i>pretest</i>			<i>posttest</i>			<i>p</i>
	OC	TC	Total	OC	TC	Total	
Stress level at work	3.71	3.09	3.46	3.71	3.64	3.68	.23
Stress level in nonwork activities	2.00	3.18	2.46	2.71	3.27	2.93	.07
Overall stress level	3.29	3.18	3.25	3.35	3.64	3.46	.79
Extent nonwork sources contribute to work stress	1.82	3.18	2.36	2.41	2.73	2.54	.09
Extent work sources contribute to nonwork stress	3.24	1.64	2.61	3.41	3.09	3.29	.01
How stressful is work?	3.53	2.45	3.11	3.29	2.82	3.11	.01
How stressful is life?	2.71	2.73	2.71	3.12	3.00	3.07	.88

0 = stress

5 = the most stress you ever feel

A 2×2 MANOVA repeated on the second factor (site \times time) produced a significant site effect, $F(11, 16) = 3.00$, $p = .02$. (See Table 1.) The eigenvalue solution failed to converge for the time factor, suggesting a linear relationship between pretest and posttest scores, and the site by time interaction was not significant. Follow-up univariate tests indicated that TC students reported higher work-related stress and a greater amount of spillover from work to nonwork stressors than did OC students. With regards to the nonsignificant time factor, it would seem logical to expect stress levels of students to be higher at posttest since it was administered in December when they were completing assignments, preparing for final exams, and generally experiencing more social pressure in their lives. The fact that this was not the case suggests to us that the course had a positive impact on the students, i.e., stress levels remained constant in the face of increased demands. Further, the nonsignificant interaction effect suggests that the OC and TC groups benefited equally from the course.

Stress Control Activities

At pretest students in our sample did not report a large repertoire of stress management strategies, and those which they did report were used

at levels that would not be considered therapeutic. The one exception was that OC students, who reported using some form of aerobic exercise 4-5 times per week (however, TC students exercised only about once every 1-2 weeks). Some form of deep relaxation was used on the average about once a month to control stress for both OC and TC students. Students in both groups tended to use common activities like music (mean use was daily), diet, consulting with a colleague or friend, socializing, and maintaining a positive focus (mean use for these was weekly) to help control stress. The mean use of prescription medication was very low (once or twice a year or less).

TABLE 2
Mean Frequency Use of Stress Reducing Activities

Activity	pretest		posttest		Time Test	Site Test
	OC	TC	OC	TC		
Relaxation	1.53	1.64	2.47	1.73	**	NS
Exercise	3.59	2.73	3.47	2.73	NS	*
Nutrition	4.24	3.82	4.53	4.18	NS	NS
Consult friend	4.12	3.18	4.47	4.00	*	NS
Support group	2.00	2.18	3.82	3.36	**	NS
Coping skills	2.18	1.64	2.59	2.00	NS	NS
Informal Socializing	4.29	2.73	4.29	3.27	NS	**
Religion	3.18	3.55	2.59	3.36	*	NS
Reading	3.94	3.45	3.88	3.55	NS	NS
Music	5.06	4.27	4.65	3.45	**	*
Positive Self-talk	4.59	3.73	4.65	3.36	NS	**
Alcohol	2.94	1.27	2.76	1.18	NS	**
Smoking	1.65	1.36	1.76	1.36	NS	NS
Prescription Meds	1.00	1.00	1.00	1.09	NS	NS
Nonprescribed Meds	1.35	1.55	1.53	1.45	NS	NS
Television	3.88	3.73	3.71	4.00	NS	NS
Hunting/Fishing	1.18	1.40	1.39	1.22	NS	NS

* $p < .05$

** $p < .01$

Scale for relaxation and exercise: 1 = less than once a month

5 = at least every day

Scale for other categories: 1 = less than once or twice a year

6 = several times per day

A 2×2 MANOVA repeated on the second factor (site \times time) was used to test for differences in the use of stress control activities between the two sites and across time. There was a significant site effect, $F(13, 14) = 2.78$, $p = .03$ and a significant time effect, $F(13, 14) = 5.27$, $p < .01$. Follow-

up univariate tests on the site effect indicated that OC students more frequently used exercise, $F(1, 26) = 4.67$, $p = .04$; informal socializing, $F(1, 26) = 15.28$, $p < .01$; music, $F(1, 26) = 5.01$, $p = .03$; and alcohol, $F(1, 26) = 13.09$, $p < .01$ to control stress than did TC students. (See Table 2.) Follow-up univariate tests on the time effect indicated that for the group as a whole, the use of relaxation increased over time $F(1, 26) = 12.28$, $p < .01$, as did consulting with others $F(1, 26) = 6.23$, $p = .02$, and using a formal support group $F(1, 26) = 28.04$, $p < .01$. On the other hand, the use of religious activities $F(1, 26) = 4.82$, $p = .04$ and music $F(1, 26) = 10.01$, $p < .01$, for controlling stress, decreased over time. In the initial multivariate test the interaction effect was not significant, indicating that there were no differential treatment effects across groups, i.e., that both groups benefited equally from taking the course. This suggests that the use of formal stress control procedures, which was a focus in the course, increased over time, while the use of informal practices decreased and that these effects were similar for both OC and TC students.

Course Grades

Achievement of the OC and TC students was virtually identical across all the evaluation components of the course. The final class averages were 76.25 for OC students and 77.93 for TC students. Class averages on the examinations were 64.2%, 78.8%, and 80.8% for OC students, and 69.1%, 85.4%, and 78.0% for TC students. Term paper class averages were 79.2% for OC students and 81.5% for TC students. Student course evaluations also demonstrate a similar pattern. Average student ratings of the instructor, the course content, and the total course experience were in the range 5-5.5 on a 6-point scale for both groups, where 6 is high, indicating that student satisfaction with the course was similarly high across both delivery modes. None of the above differences reached statistical significance.

DISCUSSION

The above data suggest that teleconferencing can be an effective medium for teaching people to control stress and burnout. Figure 1 indicates that during the fall term (when the course was offered) perceived stress levels generally were high in September, decreasing during the fall, and rose again in December. However, the pre/posttest reports of our sample indicate no significant changes across time, suggesting a departure from people's typical pattern. Taken as a whole, our data indicate that OC and TC students demonstrated similar academic achievement, reported similar increases in their repertoire of stress management strategies, and derived similar benefit in terms of the impact of those strategies on stress levels. These findings support the continued use of teleconferencing to serve students who might otherwise be unable to

continue their education and/or unable to seek professional assistance in understanding and controlling stress and burnout.

In conclusion, a few personal observations may provide encouragement for other counsellors and instructors to use teleconferencing as a way of extending the services they offer. First, although the instructor approached teleconferencing with trepidation and skepticism, it turned out to be an enjoyable experience. It was a pleasant surprise to discover that it was possible to make OC and TC sections equivalent instructional experiences. It also was encouraging to observe that although OC students used exercise, informal socializing, music, and alcohol more than TC students to control stress, during the course, the use of informal stress control practices (e.g., music, etc.) decreased and the use of formal stress control practices (e.g., relaxation) increased for both groups. Further, TC students developed a high degree of rapport with each other and with the instructor, even though most of the participants never met face-to-face. The class discussions not only helped TC students consolidate their learning, but broke up the large time block and gave the instructor a bit of "breathing space." The level of class participation from TC students was high, as was the caliber of their work. In fact, even though access to library services was more problematic for TC students, the quality of their term papers was as high as the OC students. Feedback from the TC students indicated that they perceived the course as equivalent to any on-campus course they had taken.

There will doubtlessly be some readers who will point out that the unequal numbers of people in the classes, the self-selected nature of the sample, and the differences in instructional format necessitated by teleconference delivery are limitations of this study. However, we think our report is a good example of how it is possible to combine research with field experience in a way that provide some indication of the efficacy of new procedures.

A few notes may be useful to others planning teleconference delivery. The fact that our TC students reported higher work-related stress and greater spillover from work to nonwork stressors suggests that care should be taken in scheduling course assignments and that flexibility may be important in matters such as assignment due dates. TC students were unanimous in saying that the well-organized structure of the course, logical and organized class presentations, abundant lead-time on the term paper, and the semi-structured class discussion periods, all were important in making the experience valuable for them. It seems that a well organized course is even more important in teleconference delivery than it is in traditional classroom settings.

Often it is difficult for individuals in rural and remote areas to commute to larger centres to continue their education. In such cases, teleconferencing can be an effective medium for assisting people in

continuing their education. Our data suggest TC students are able to overcome potential problems associated with taking courses in remote settings and that interactive audio teleconferencing has great potential for the delivery of some counselling services. In the end, learning better ways to control stress and burnout turned out to be a valuable and enjoyable experience for both instructor and students. In order to meet the needs of people living in rural and remote communities, it is important for counsellors and others working in educational institutions to develop and evaluate the effectiveness of alternate methods of program delivery.

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Address correspondence to: Dr. Bryan Hiebert, Department of Educational Psychology, University of Calgary, Calgary, Alberta T2N 1N4.