JOURNAL OF APPLIED BEHAVIOR ANALYSIS 1983, 16, 339-344 NUMBER 3 (FALL 1983)

THE EFFECTS OF A GOOD BEHAVIOR GAME ON THE DISRUPTIVE BEHAVIOR OF SUDANESE ELEMENTARY SCHOOL STUDENTS

PHILIP A. SAIGH AND ABDUL M. UMAR

AMERICAN UNIVERSITY OF BEIRUT AND UNIVERSITY OF KHARTOUM

An endemic version of the Good Behavior Game was applied in a rural Sudanese second-grade classroom. Official letters of commendation, extra time for recess, victory tags, and a winner's chart were used as backup reinforcers. The class was divided into two teams, and the teacher indicated she would place a check on the board after every rule violation. The students were also told that the team with the fewest marks would win the game and receive the aforementioned prizes. After an initial adaptation period, the rate of disruption was charted across four treatment phases: viz., baseline I, introduction of the game, baseline II, and reintroduction of the game. It was observed that the game phases were associated with marked decreases in the rate of seat leaving, talking without permission, and aggression. The teacher, principal, parents, and students were consequently individually interviewed, and their comments spoke strongly for the social validity of the game.

DESCRIPTORS: group contingencies, disruptive behavior, token economy, behavior modification

Western psychologists generally assume that behavioral precepts function universally. For example, Homme and Tosti (1971) contend that "one has to assume that if we are talking about laws of nature, they do not work just between the hours of nine to five, nor just in a classroom in North America. . . . Laws of nature work all the time all over the world with everybody" (p. 5). Although there is little doubt that the principles of learning (particularly those derived through animal research) would not vary in their effects cross-culturally, it is interesting to note that the conception and practice of behavior modification has by and large been an Occidental development and that there is a dearth of experimental data as to its efficacy in nonwestern settings. Moreover, a number of psychologists from developing countries have questioned the utility (empirical and social) of operant methods in these regions (Badri, 1978; Saigh & Khan, 1982; Watts, 1973).

Developing countries generally place a high premium on education inasmuch as it is felt that a more educated public will be able to use their natural resources more effectively and that this may lead to a higher standard of living and national self-reliance (UNESCO, 1970). A case in point is the Democratic Republic of Sudan, where a sizable part of the national product has been earmarked for public education (Yousif, 1977). Despite this emphasis, the principal means of classroom management in the Sudan generally involves the unsystematic application of aversive sanctions. In view of the drawbacks that have been associated with negative classroom environments (Skinner, 1968), and since a positive model of behavior management had not been field-tested in the area, the specific purpose of this investigation was to determine the efficacy and social validity of the Good Behavior Game (Barrish, Saunders, & Wolf, 1969) in the Sudan.

Requests for reprints should be addressed to Philip A. Saigh, American University of Beirut, 380 Madison Avenue, New York, New York 10017.

METHOD

Students

The study was conducted in a second-grade classroom in the El-Gazera district of the central Sudan. It should be noted that the selected school was representative of the rural public schools (Sudan Ministry of Education, 1975). The selected class ($n = 20$) had a mean age of 8.25 yr with a standard deviation of .33 yr. The principal and teacher indicated that the class's level of disruption was essentially similar to the level that was evident in other classes. It was also determined that the class's grades ($M = 61.5$, $SD = 11.5$) were not significantly different from those of their peers in the second grade. The school records revealed that 80% of the students' parents were illiterate and that 17 students worked with their families on cotton farms for approximately 12 h a week.

The study was carried out in a regular classroom that measured 6 × 7 m. It had four windows, a door, a wooden ceiling, a concrete floor, and cement walls. The room was furnished with six benchlike desks and a large blackboard. It should be noted that the data collection was limited to a regularly scheduled 50-min Arabic session.

Behavioral Definitions

The experimenter observed the students in their classroom and interacted with the school staff during a series of informal conferences. This led to the identification of three target behaviors that were considered (by the teacher and principal) to be sufficiently disruptive to warrant modification. These were:

Talk or verbal disruption. Talking without being requested or permitted by the teacher, whistling, singing, or making other sounds.

Aggression or physical disruption. Physical contact such as hitting, kicking, pushing, making someone stumble, hair pulling, pinching, throwing objects at others, as well as destroying the property of others.

Seat leaving. Getting out of the seat without permission. This included standing up, jumping, and walking around the room.

Observer Training

The study necessitated the presence of two female observers in the classroom in addition to the regular teacher. The observers were volunteers from the school's faculty. They initially received three lessons on classroom behavioral coding techniques and were consequently assigned to a second-grade classroom that was similar to the experimental class. In this context they practiced observing and coding the target behaviors of the class as a whole according to a basic 30-sec interval sampling format. This training went on for 5 days. In an effort to avoid consensual drifts among the observers, the experimenter attended all of the practice sessions as well as the actual experimental sessions. Moreover, he informed the observers that he was going to check their work on an irregular basis in order to maintain a degree of quality control. These checks were carried out throughout the study and reflected 20% of observation periods.

Reinforcement Preference

Prior to the treatment, the experimenter administered an endemic reinforcement preference questionnaire to the students. This questionnaire was constructed on the basis of a series of interviews with the students, teachers, and school officials. The list was limited to items or events that were cost-effective, i.e., the overall budget for the backup reinforcers was limited to 10 Sudanese pounds ($12.50). The list included an officially stamped and signed letter of commendation attesting that the said student had behaved in an exemplary manner. It should be noted that an independent committee of Sudanese educators and parents had unanimously agreed that these letters would be highly prized by the families of the students. Additional free time, victory tags, and the privilege of having a star placed by one's name on a winner's chart were also

included on the list. The victory tags and winner's chart were adopted from the original Barrish et al. (1969) study because it was felt that these reinforcers held a degree of cross-cultural utility. Finally, the experimenter individually met with each student and inquired if he or she would like to receive these prizes. The question received an affirmative reseponse from the entire sample.

Experimental Design

The 5-wk study involved an initial adaptation period that was followed by a basic ABAB design.

Adaptation period. The observers joined the class 1 wk before the data collection was formally initiated in order to give the students enough time to adapt to their presence. On the fourth day of this period the class was divided into teams (A and B). Each team consisted of five boys and five girls. Attention was given to equating the teams with respect to the students' propensity for disruption (as observed during the first 3 days of this period) in order to avoid the possibility of favoring one team over the other. For the sake of convenience, the seats were rearranged in such a way as to separate the two teams. A series of χ^2 tests revealed that there were no statistically significant differences between the intervals of disruption of Teams A and B for each of the target behaviors on the fourth, fifth, and sixth day of the adaptation period.

Baseline I (first week). During this phase the teacher posted a large notice on the front wall that enumerated the undesirable behaviors. This notice was read aloud during each day of the entire study and remained in place above the blackboard. The teacher went on to teach her lesson according to her normal method of instruction, and each instance of rule violation was handled in the traditional way, i.e., by scolding or spanking.

Introduction of the game (second week). On the first day of this phase the teacher announced that the teams were going to play a "game" during their 50-min class session for the next 6 days. She restated the target behaviors and explained that each rule violation would result in the placement of a check mark on the board. She also said that she would verbally identify the misbehaving student and the behavior which he or she evinced. The teacher went on to note that these marks would count against the offender's team and that this might result in a loss of privileges for the entire team. It was further explained that the team with the fewest marks would win the game and that there would be daily and weekly winners. The daily winners would receive the victory tags and have stars placed next to their names at the end of each class period. They would also receive an additional 30 min of free time after their regularly scheduled recess period in order to engage in a variety of personalized activities, e.g., sports, listening to stories, and drawing. The weekly winners would be the team or teams with 25 or fewer check marks. They would receive the officially stamped commendadation letters. It should be noted that the teacher did not provide any other consequences during this phase of the study.

Baseline II (third week). This phase was similar to that which was described under baseline I. However, the teacher announced on the first day of this phase that the game contingencies were no longer in effect.

Reintroduction of the game (fourth week). The game was reintroduced as it had been under the introduction of the game phase.

RESULTS

Data were recorded with respect to whether or not the target behavior(s) were evident during each 30-sec interval. Interrater reliability for occurrence was determined by dividing the total number of agreements by the number of agreements plus disagreements times 100. Interrater reliability for the target behaviors during the adaptation period was 92%, 94%,

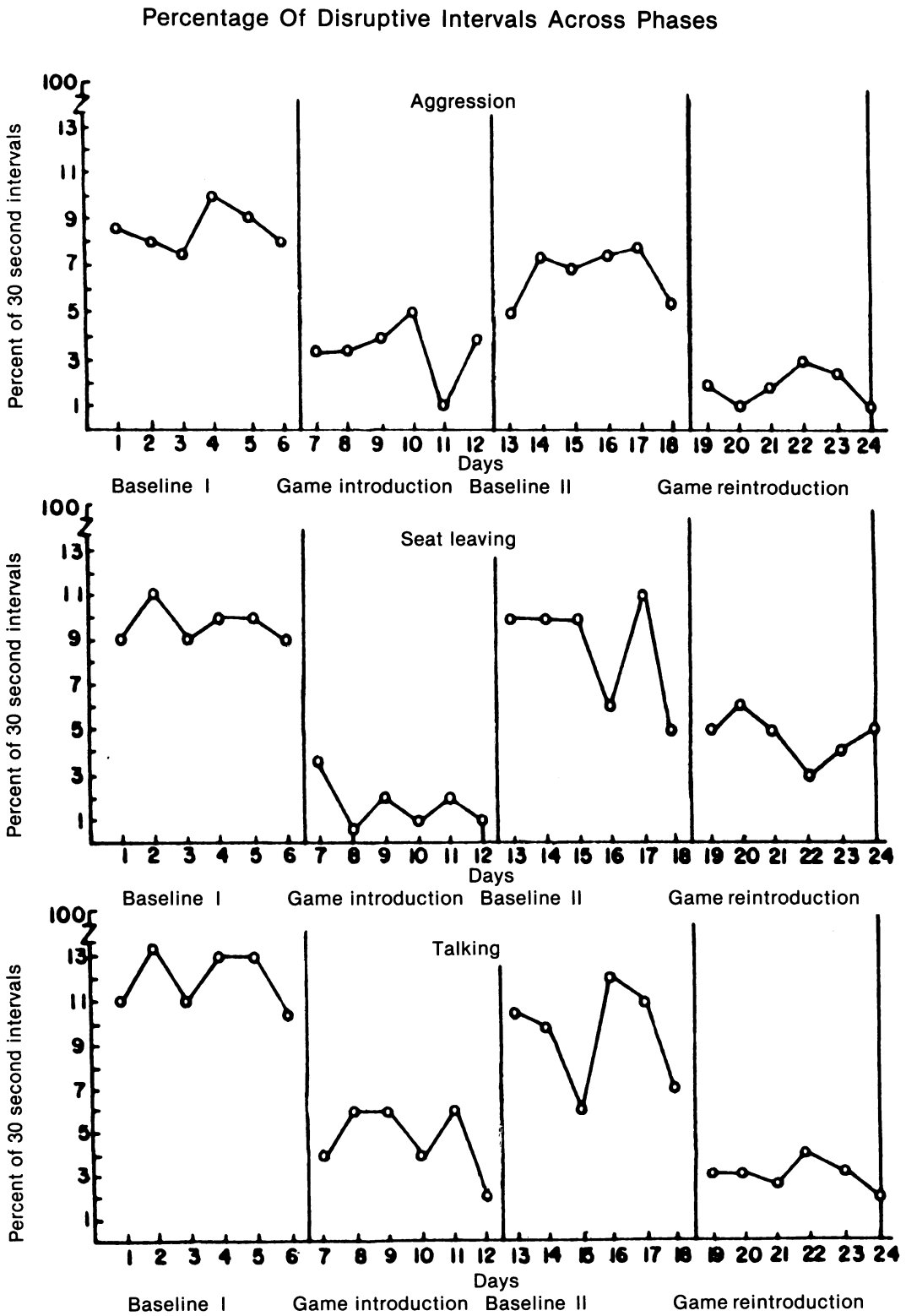

Fig. 1. The percentage of disruptive intervals for the experimental phases across the three target behaviors.

and 90%. During baseline I, the ratios were 94%, 94%, and 91%. When the game contingencies were introduced, reliability was assessed at 91%, 91%, and 93%. Interrater reliability during baseline II was 93%, 89%, and 88%. The last phase of the study reflected reliability assessments of 92%, 86%, and 94%.

Figure 1 reflects the percentage of disruptive intervals that were observed during the experimental phases of the study.

During baseline I, the intervals of aggression averaged 8.5% (range 8-10%). The intervals of seat leaving averaged 9.6% (range 9-11%), and the intervals of talking without permission averaged 12% (range 10.5-13.5%). When the game was introduced, the intervals of aggression averaged 3.5% (range 1-5%). The intervals of seat leaving averaged 1.7% (range .5-3.5%), and the intervals of talking without permission averaged 4.7% (range 2-6%). When the contingencies were withdrawn, the intervals of aggression, seat leaving, and talking averaged 6.6% (range 5-8%), 8.7% (range 5-10%) and 9.4% (range 6-11%), respectively. During the last phase of the study, the intervals of aggression averaged 1.9% (range 1-3%), the intervals of seat leaving averaged 4.7% (range 3-6%), and the intervals of talking out averaged 2.9% (range 2-4%).

A series of χ^2 tests revealed that there were no statistically significant differences between the intervals of disruption of males and females for each target behavior during the four experimental phases. Finally, team A won seven times and team B won five times. Both teams behaved in such a way as to warrant the commendation letters, and these were issued at the end of the second and fourth weeks.

DISCUSSION

The Good Behavior Game appears to have had a significant influence on the behavior of the participating students. In view of this and as the class and school were indicative of the Sudanese educational and cultural norms, it is felt that a considerable degree of support for the cross-cultural utility of the game was established.

In an effort to address Wolf's (1978) concern for social validity, a number of posttreatment interviews were held with the principal, teachers, parents, and students. These interviews revealed that the participants were exceedingly pleased with the game and the results that were obtained.

American psychologists may be prompted to remark that these results could have been expected and may even question the purpose of reporting a study of this type in 1983. It should be noted, however, that although there are three major behavioral societies in the United States and more than 20 others in Europe, Australia, and New Zealand (Azrin, 1979), the vast majority of psychologists and educators in the developing world are not familiar with the concept or utility of behavior modification. Moreover, inasmuch as "theory and procedure should be investigated and documented prior to clinical application" (Ullmann, 1979, p. 14), the authors felt that the model should be field-tested in toto. In view of the treatment's efficacy and the participants' apparent satisfaction with the game, it is recommended that further research be directed toward the empirical validation of additional Occidental intervention procedures and toward the development of innovative behavioral techniques on an endemic basis.

REFERENCES

Azrin, N. H. The present state and future trends of behavior therapy. In P. Sjöden, S. Bates, & W. Dockens (Eds.), *Trends in behavior therapy*. New York: Academic Press, 1979.

Badri, M. B. *The dilemma of a Muslim psychologist*. London: Prentice Hall, 1978.

Barrish, H. H., Saunders, M., & Wolf, M. Good behavior game: Effects of individual contingencies for group consequences on disruptive behavior in the classroom. *Journal of Applied Behavior Analysis*, 1969, **2**, 119-124.

Homme, L., & Tosti, D. *Behavior technology: Motivation and contingency management.* San Rafael, Calif.: Individual Learning Systems, 1971.

Saigh, P. A., & Khan, S. Token reinforcement in a Pakistani classroom. *Journal of Social Psychology,* 1982, **118,** 11-16.

Skinner, B. F. *The technology of teaching.* New York: Appleton Century Crofts, 1968.

Sudan Ministry of Education. *Report by the Statistical Division on elementary education.* Khartoum: Author, 1975.

Ullmann, L. P. Treating the real, not the concept. In P. Sjöden, S. Bates, & W. Dockens (Eds.), *Trends in behavior therapy.* New York: Academic Press, 1979.

UNESCO. *Studies on selected development problems in various countries in the Middle East.* New York: Author, 1970.

Yousif, H. A. *Sudanese education: An appraisal and a strategy for action.* (Sudan Ministry of Education). Khartoum: Tarbia, 1977.

Watts, A. W. *Psychotherapy east and west.* London: Penguin, 1973.

Wolf, M. M. Social validity: The case for subjective measurement or how applied behavioral analysis is finding its heart. *Journal of Applied Behavior Analysis,* 1978, **11,** 203-214.

Received July 19, 1982
Final acceptance February 24, 1983