The Impact of Ice Breaking Exercises on Trainees' Interactions and Skill Acquisition: An Experimental Study

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(Received 07.09.1428H., and Accepted 01.11.1428H.)

Abstract. Five hypotheses were formulated and examined through an experiment aiming to find out the impact of ice breaking exercises on trainees' interactions during training, and skill acquisition at the end of training. Participants were randomly assigned to an experimental group (EG), n = 18, and a control group (CG), n = 17. Both groups sat for a pre-test in the training subject, and were trained by the same trainer in the same subject using the same materials in the same training environment. The experimental group participated in ice breaking sessions, while the control group did not. Interactions were observed in both groups during training. A post-test was given to both groups at the end of the training program. The same experiment was repeated for another experimental group, (n = 18), and a control group (n = 17) with different participants. Compared to the control groups, findings of the study show that both experimental groups were more interactive, and scored higher in the post-test with significant difference from the control groups. The study concluded that there was enough evidence to support the hypotheses that ice breaking has a positive impact on trainee interaction and skill acquisition. Recommendations for applying ice breaking in training were outlined. The study also suggested further research in this area.

Introduction

While human beings have traditionally lived and worked in small and stable societies, current workplace cultures are becoming increasingly large and dynamic. Some of the main factors contributing to this dramatic change include

globalization, the revolution in communications, and an ever-increasing specialization of labor. The overall effect of these changes is that individuals are now required to deal with many different groups of people in their workplace, as well as in their personal lives.

Joining a new group, like in training settings, and immediately being expected to get along with them is somewhat unnatural and may engender a range of conflicting expectations of what the person will do, learn, and whom he will meet. Therefore, there is a need for methods to help people, regardless of their professions or past experiences, to adapt and emerge into the new settings (Saks, 1996). A common ice breaking tactic involves short activities designed to break down barriers and get everyone working together before training. This study will explore the impact of such a tactic on trainees' performance during training sessions and on the skills gained at the end of the training program.

Research Problem

Research indicates that adult training needs special attention, particularly at the beginning of training programs (Jones, 1986; Allen and Meyer, 1990; Ashforth and Saks, 1996; Ashforth *et al.*, 1997). Adults learn more when they are part of the program and participate with their colleagues from the beginning of the training process. Newcomers who get in touch with a new group for the first time usually have initial expectations which will be tested against reality. A tentative adjustment in attitude and behavior will take place. Participatory ice breaking activities and exercises are necessary tools for teambuilding in training programs. With the current emphasis on a "bottom up approach" to human development as opposed to "top down approach", wider participation of trainees and more interactive training has become more important than before (Saks, 1996).

Some training proponents suggest that any training workshop of one full day or more should have an "*ice breaking*" session of approximately 50 minutes, scheduled at the beginning of the workshop, (Pike, 2004;.scn.org). This is based on the assumption that training is improved by prior ice breaking sessions. Taking this into consideration in determining effective training method, the present study focuses on the difference that ice breaking makes in trainees' interaction during training as well as the skills gained.

Research Hypotheses

Experimental groups were exposed to ice breaking sessions; control groups were not. The study postulates five hypotheses to be tested:

- *H1*: Trainees' interactions in experimental groups will be better than that of control groups.
- *H2*: No statistical differences in mean pre-test scores will be observed between experimental groups and control groups.
- *H3*: Statistical differences in mean post-test scores will be observed between experimental groups and control groups.
- *H4*: Statistical differences in mean pre- and post-test scores will be observed among experimental groups.
- **H5**: Statistical differences in mean pre and post test scores will be observed among control groups.

Importance of the Study

Most of what has been written in training literature focuses mainly on the training cycle, starting from needs assessment and ending up with training evaluation. One of the most neglected dimensions in the training cycle, nevertheless, is human interaction during training. Feedback gathered from participants at the end of a training program have raised validity and reliability questions as the trainers and trainees all breathe a sigh of relief (Mann and Robertson1, 996; James and Roffe, 2000, Hunt and Baruch, 2003). Organizations spend a significant portion of their human resources allocations on training their staff in order to increase their productivity. Such financial resources must be spent on something that is worthy and beneficial (Read and Kleiner, 1996; Tennant *et al.*, 2002).

One way of determining whether resources are fully utilized is to conduct a scientific research on the way training programs are being executed to find if they make a difference in group dynamics and skills acquisition during training. Mann and Robertson (1996) suggest pre- and post-test assessments of skills acquisition as a means of evaluating this. Our study sheds light on "ice breaking" tactics that seem to be of relevance to trainers, trainees, and organizations. Researchers have asserted the importance of doing more research on this area of training (Anderson and Thomas, 1996; Chen and Klimoski, 2003).

A notable gap in ice breaking and organizational socialization research is the small number of studies that investigate its impact on performance, integration of newcomers with their colleagues, teams work, and the setting they work in (Bauer *et al.*, 1998). No single study about the nature of the current study is found in the literature. It is hoped that the current study will

increase our understanding of applying a new technique in training, and finding out the difference it makes, especially in the Arabic culture.

Literature Review

Traditional training literature has led to a belief that trainees learn best by listening to trainers. It has been found, however, that training which results in increased self-awareness, changed behavior, and the acquisition of new skills must actively engage the individual in the training process through fun and openness to others and help to empower trainees (Menon, 1995). In particular, training is an innately human activity and adults have been found to learn more effectively by sharing, experiencing, and interacting with their peers or what is sometimes called interactive empowerment (Vogt and Murrell, 1990). Such interactions among trainees are usually difficult to achieve with no intervention by the trainer (Saks, 1996). Although one of the main challenges for a trainer is to help group members to be more open with each other and be more dynamic, the trainer can facilitate and make the training smother by doing some ice breaking exercises and activities at the beginning of training program (Pike, 1994).

According to the American Heritage Dictionary of the English Language, ice breaking is something done or said to relax an unduly formal atmosphere or situation at the start. More precisely, the purposes and benefits of ice-breaking activities are: (1) to encourage all participants in breaking down and discarding rigid formality, status, prestige, authority, structured attitudes and behavior habitually employed in day-to-day activities; (2) to encourage all participants to relax and enjoy themselves and each other as persons, not limited to roles or status holders, in preparation to becoming more open and open-minded towards the substantive training to follow; (3) to encourage participants to interact with each other and get to know each other in non-orthodox and untraditional contexts; (4) to soften up participants before they face the core material of the training; *and*, (5) to improve the training process of the overall training workshop by preparing the participants as above (Feij, 1998; Joost *et al.*, 2001; Wanous, 1992; Wanous *et al.*, 1984; scn.org).

The above mentioned benefits of ice breaking can be also linked to Skinner's theory of stimulus and response in which he concluded that each stimulus has a response (Fadlallh, 1998). The stimulus here is ice breaking while the response is the interactions among trainees which lead to a better understanding among participants reflected, consequently, on the training social environment and acquisition of skills. Henry Denson also stresses on the notion of the starting point of an individual when joining a new group. He implicitly mentioned the importance of breaking the ice by the person in charge, the trainer in this context, in order to have an effective team work (Almonef, 1995). In comparison to the individual approach, Vries (2004) argues that a group

approach provides peer support. Human Relations School of Management resembled in Hawthrone experiments indicates that people in a working group need to feel welcomed, and to constantly interact with each other.

The Japanese are well-known for applying the notion of ice breaking in their daily work culture. For example, employees say aloud together the motto of the company they work in, and then do some stretching of the same length daily. Furthermore, group work in Japan is often regarded as more powerful and productive than working individually (Saamani, 2005). The key to Japanese effectiveness is the combined brainpower of all its employees and the fostering of intense exchange and communication (Glass, 1991). While some believe that social values are the most important factor which makes nationalities differ in their group work dynamics, attitudes, and interactions, studies show that training and organizational cultures are the key factors that make the unique national differences in this regard (Misumi, 1993).

Ice breaking in training can also be traced theoretically to Organizational Socialization (OS), sometimes called employee orientation or preparation. OS is the process through which a newcomer joins a group of work, and gets integrated and becomes an effective participant in the group, usually through a third party, which is the trainer in our case. OS applies more to new employees and to transferred employees whether between organizations or within organizations (Van Maanen and Schein, 1979). However, OS can include changes in or the development of new skills, knowledge, abilities, attitudes, values, and relationships, and the development of appropriate sense-making frameworks such as ice breaking in training settings (Chatman, 1991; Chao *et al.*, 1994; Thomas and Anderson, 1998; Wanberg and Kammeyer-Mueller, 2000; De Vos *et al.*, 2003).

Some models that indirectly address OS are relevant to a broad range of groups and indirectly relate to ice breaking. Ostroff and Kozlowski (1992), for example, emphasized group process as a core step in socialization. While Taormina (2004) asserts that training, support of colleagues, and understanding are essential dimensions in participants' socialization and interactions, Haueter *et al.*, (2003) focused on group formulation, task, and organization. Similarly, Cooper and Anderson (2002) covered role, social, and interpersonal communication.

In team building training, success comes by having a team mobilized to perform. Each individual must be integrated fully into the team. Common values, aspirations, commitment to one another's success, and cooperation are paramount in forming a cohesive team (Martin, and Davids, 1995). Participants' mobilization, therefore, is a key factor which can only be performed efficiently by the active involvement of trainers and team members. This, in turn, implies

proper training and development of individuals with the whole group being committed to help each individual to succeed (Mestre *et al.*, 1997).

Traditionally, training is focused on presentation, lectures and a classroom-like environment. That is, trainees expect the trainer to begin lecturing from the first minute and deliver a lecture in a teacher-led way while the role of the trainee is to absorb the information. This approach has changed over the last two decades even in education, where it first started, especially with the advancement of technology (Neo and Mai, 2004). The new trend in training is that the trainer plays the role of the facilitator especially at the inauguration of training and is similar to a socialization agent who releases tensions, breaks barriers, and forms the values and expected behavior for the group.

Training methods literature has focused on the means of delivering training courses. The top ten training methods are: videotapes, lectures, one-on-one instruction, role playing activities, games/simulation, case studies, slides, computer-based training, audio tapes and films (Read and Kleiner, 1996). Read and Kleiner discussed the factors to consider when selecting a training method or combination of methods, and emphasized the importance of post-training evaluation. Regardless of what method is used, trainees tend to appreciate and continue learning in settings where they feel they have a significant contribution to make to the discussion, and that their contributions are acknowledged and appreciated by the group as a whole.

Furthermore, trainees tend to rely on colleagues who may also be experts in their professional field for guidance when embarking on a new training venture. Such benefits might not happen if group members were not prepared (Ardts *et al.*, 2001). Some of the main indicators observed in an interactive group are: questions/ answers, punctuality, absenteeism, collegiality, cooperation; support, sympathy, humor, proposing, vivacity and openness, defending and attacking (Midgley and Rougetel, 1994; Feij; 1998).

No previous studies of this type were found in the literature. Some indirect studies; however, have indicated that framing at the start of training impacts trainees' attitudes, interaction and motivation, since they gain self-efficacy from the start of the training program (Tai, 2006). Other studies in the education field reached the same conclusion (Hodgkinson, 2002). Kleinman *et al* (2002) studied the ability of team social interaction processes within work teams. The study indicated that social interaction process was significantly related to an employee's orientation toward team work, and recommended that teams be provided with an environment wherein individuals experience a positive social interaction process.

Other studies also found that trainees learn more when an interaction approach is implemented (Midgley and Rougetel, 1994; Donavan et al., 2004).

Another study describes the relative effectiveness of alternative training methods to attain specific types of training objectives and concluded that one-to-one training is the preferred method for knowledge acquisition. On the other hand, participants perceive this method to be less useful in changing attitudes and in gaining trainees' acceptance (Perdue *et al.*, 2002).

Research Design and Methods

The study applied an experimental research technique to an experimental and a control group, for two rounds. The following explains the design of the study:

| Einst Daum d | Eg1 | Pre-T | X | Post-T |
|--------------|-----|-------|---|--------|
| First Round | Cg1 | Pre-T | О | Post-T |
| Second Dound | Eg2 | Pre-T | X | Post-T |
| Second Round | Cg2 | Pre-T | 0 | Post-T |

where is:

EG1: Experimental Group #1 Pre-T: Pre-Test CG1: Control Group # 1 Post-T: Post-T

EG2: Experimental Group # 2 X: The Experiment (exposure to ice breaking)

CG2: Control Group # 2 0: No experiment

Random assignment

Participants were screened before registering in the training program to make sure that they are similar in age, length of experience, education, gender, and had not previously attended a similar training course. They were randomly assigned to four groups, the experimental groups were also randomly chosen from the four groups. Participants did not know each other before training. They came from different cities in Saudi Arabia and they worked for various organizations, public, private, and non-profit. The training took a place in a private training center in Riyadh.

Before the training started, both experimental and control groups were given a pre-test exam that reflected the skills intended to be gained by participants at the end of training. The pre-test was proved for its validity through a review by research design professors and experts in the subject of training. Reliability of the test was very high, Cronbach's alpha = 0.91. The experimental group was exposed to ice breaking exercises and activities in the inauguration of the training program, and at the first 30 minutes for the following training days. The training lasted for five continuous days from 8:00

AM to 4:00 PM, with few a breaks between sessions, and an hour for lunch brake and noon prayer.

The control group was not exposed to ice breaking exercises and activities, and was trained in the same way and the same training environment as the experimental group, in the same subject, the same materials. Both groups were given the same post test at the conclusion of training. Observation against some indicators was used to measure the interactions of trainees during training sessions. The indicators were examined for validity and modified, according to the feedback of referees before the experiment. The same experiment was repeated for other experimental and control groups with new participants and under the same conditions. The training for the second round was during the consecutive week of the first round. The subject of training in the four programs were building and maintaining effective team work.

Applying the Experiment

The trainer began the session by introducing himself, stating the objectives of the training course, then asked each pair of participants to introduce each other. The trainer informed the group that in order to relax and release tensions, everybody in the group will participate in ice breaking activities. Trainees who were hesitant to participate were encouraged by the trainer, his assistant, and other trainees. To overcome formality, and for the purpose of easy movements, all participants were asked to take off their traditional head scarves, empty their pockets, and put their personal stuff in a safe place.

They were then asked to line up in alphabetical order, and then form a circle around the room standing in the correct order of their date of birth. They were asked not to talk whilst they organized themselves in a circle, so there would be plenty of sign language and interactions. Once everyone is in place, the trainer walks around the circle asking each participant to state his date of birth.

Stretching exercises were introduced to the whole group with the help of an assistant. This lasted for 15 minutes. After that, group members were divided into three subgroups to perform some creative tasks and competitive games. This lasted for another 30 minutes. The trainer then wrote the training group expectations, lined out the rules and values of the training sessions. Participants, then, were given a break before starting the first training session.

These ice breaking sessions were repeated on the following four training days, but with less time devoted to them. The same stretching exercises introduced in the first day were repeated, but games were shorter and different each day. The same procedures were used in the two rounds of the experiments. No drop outs were observed among participants after the first day with the exception of two participants who left in the second round, one from each

group: one left the experimental group, when called back by his organization for an emergency, the other, from the control group, left for unknown reasons. They were not included in the analysis.

Description of the Study Samples

All participants in experimental groups were Saudi males. Their mean age was 31 years and all held bachelors degrees. Their mean work experience was nine years. The participants in the other two control groups were also Saudi males, their mean age was 32.5 years. All had bachelors degrees, and their mean work experience was ten and a half years. Therefore, it can be said that the participants in all groups were similar in their personal variables.

Results

It was hypothesized, (HI), that trainees' interaction in the experimental groups exposed to ice breaking sessions would be better than the interactions of trainees in the control groups, which were not exposed to ice breaking sessions. Table 1 compares the observations about the groups taken by the researcher during training sessions. This shows that the experimental groups scored high in most indicators used to measure interaction. In fact, both experimental groups scored well in openness, vivacity, answering questions, comments, sympathy, and humor. Raising questions, punctuality, propositions, and within group participation were medium in one of the experimental groups.

Table 1. A comparison of experimental and control group interaction during training sessions.

| | | Experimental groups | | | | Control groups | | | | | | |
|----------------------------|---|---------------------|---|---|-----|----------------|---|-----|---|---|-----|------------------|
| | | EG1 | | | EG2 | | | CG1 | | | CG2 | |
| Interactions indicators | H | M | L | Н | M | L | H | M | L | H | M | \boldsymbol{L} |
| Openness | X | | | X | | | | | X | | | X |
| Vivacity | X | | | X | | | | | X | | | X |
| Raising questions | X | | | | X | | | | X | | X | |
| Answering questions | X | | | X | | | | X | | | | X |
| Comments | X | | | X | | | | | X | | X | |
| Sympathy | X | | | X | | | | | X | | | X |
| Punctuality | | X | | X | | | | X | | | X | |
| Within-Group participation | | X | | X | | | | | X | | | X |
| Humor | X | | | X | | | | X | | | | X |
| Proposition | | X | | | X | | | | X | | | X |
| Cooperation | X | | | X | | | | | X | | X | |

Notes

EG1: Experimental Group # 1 H: High EG2: Experimental Group # 2 M: Medium CG1: Control Group # 1 L: Low

CG2: Control Group # 2 X: Indicator observed

The control groups, on the other hand, scored lower in their interactions when compared to the experimental groups in all indicators except in punctuality, in the first round, and raising questions in the second round. Both had average scores in comparison with the experimental groups. Most of the interactions indicators for both of the control groups were observed to be low and only a few indicators were medium. No one indicator scored high in both of the control groups. Therefore, it can be said that there is enough evidence to support (H1): Trainees' interactions in experimental groups will be better than that of control groups.

Hypothesis two, (H2), states that there would be no statistical differences in mean pre-test scores among experimental groups exposed to ice breaking sessions, and those of the control groups, not exposed to ice breaking sessions. This hypothesis was formulated in order to make sure that all groups are similar in their level of skill in the training subject. Table 2 contains the scores of pre-tests for all groups. It indicates that both the experimental and the control groups scored almost identically in the pre-test: their mean scores ranged from 35.1 to 37.8. Standard deviations were very close in all groups: 3.5; 3.08; 3.3; and 2.8.

Table 2. A comparison of mean scores and standard deviations of pre-tests* for both experimental and control groups.

| | _ | mental ups | Control groups | | |
|----------------|------|---------------|-------------------|------|--|
| | EG1 | EG2 | CG1 | CG2 | |
| Mean | 37.8 | 36.8 | 35.1 | 37.1 | |
| Std. Deviation | 3.5 | 3.08 | 3.3 | 2.8 | |
| Highest | 43.5 | 41 | 40 | 42 | |
| Lowest | 31 | 33 | 29 | 30 | |

Notes:

EG1: Experimental Group # 1 CG1: Control Group # 1

* The pre-test was out of a 100 score.

EG2: Experimental Group # 2 CG2: Control Group # 2

Table 3 includes t-tests of both experimental and control groups. It shows no significant difference between groups – whether experimental or control – in each round, nor between rounds: two experimental groups together vs. two control groups together. Hence, there is enough evidence to support (H2): that no statistical differences would be observed in mean scores in the pre-tests between experimental and control groups.

| Groups | t value | df | Mean differences | Sig. | Std. error differences | 95% Confo of the dif Lower | |
|---------|---------|----|---------------------|------|---------------------------|----------------------------------|-----|
| EG1-CG1 | 2.4 | 34 | 2.8 | 0.11 | 1.15 | 0.48 | 5.1 |
| EG2-CG2 | 0.3 | 32 | 0.29 | 0.76 | 1.01 | 1.76 | 2.3 |
| EGs-CGs | 1.67 | 68 | 1.31 | 0.10 | .78 | 0.25 | 2.8 |

Table 3. Differences in pre-test mean scores of among experimental and control groups.

Notes:

EG1: Experimental Group # 1
CG1: Control Group # 1
EG2: Experimental Group # 2
CG2: Control Group # 2
EG3: Both of the Experimental Groups
CG3: Both of the Control Groups

However, the mean scores of the experimental groups were higher in the post-test exam, Table 4. While the mean scores for the experimental groups were 77.4 and 81.1, the mean scores for the other two control groups were 55.7 and 61.3. Standard deviations varied moderately in all groups and ranged from 1.44 to 3.2 in post-tests.

Table 4. A comparison of mean scores and standard deviations of post-tests* for experimental and control groups.

| | Experime | ntal groups | Control groups | | |
|----------------|----------|-------------|----------------|------|--|
| | EG1 EG2 | | CG1 | CG2 | |
| Mean | 81.1 | 77.4 | 59.7 | 61.3 | |
| Std. Deviation | 3.2 | 2.2 | 1.44 | 2.2 | |
| Highest | 85 | 80 | 62 | 64 | |
| Lowest | 73 | 71 | 57 | 55 | |

Notes:

EG1: Experimental Group # 1 CG1: Control Group # 1

* The post-test was out of a 100 score.

EG2: Experimental Group # 2 CG2: Control Group # 2

To examine the third hypothesis (*H3*), t-test results included in Table 5, show that there were significant differences among the groups in the post-test

- exams. That is, there were significant differences between the mean scores of:

 The first experimental and control groups (t = 25.4, df = 24, p value =
 - The second experimental and control groups(t = 21, df = 32, p value <.01);
 - Both of experimental groups and both of control groups (t = 28.6, df = 56, p value <.01).

Table 5. Differences in post-test mean scores for experimental and control groups.

| Groups | t value | df | Mean difference | Std. error mean | 95% Confo of the di Lower | |
|---------|------------|----|-----------------|--------------------|---------------------------------|-------|
| EG1-CG1 | 25.4** | 24 | 21.4 | .83 | 19.6 | 23.06 |
| EG2-CG2 | 21** | 32 | 16.11 | .76 | 14.5 | 17.6 |
| EGs-CGs | 28.6** | 56 | 18.8 | .65 | 17.4 | 20.1 |

Notes:

EG1: Experimental Group number 1 EG2: Experimental Group number 2 ** P < 0.01

CG1: Control Group number 1 CG2: Control Group number 2 EGs: Both of the Experimental Groups CGs: Both of the Control Groups

It can be said that there are enough evidences that there are differences in mean scores of the post test between trainees in the experimental groups that were exposed to ice breaking sessions and the trainees in the control groups that were not exposed to ice breaking sessions.

Table 6 includes t-tests (paired samples) of the differences in mean scores between pre and post- tests. The table shows that all groups indicate significant differences in their mean scores (p < .01). This indicates that there is enough evidence to support the remaining two hypotheses: in the experimental groups, there would be statistical differences in mean scores between the pre- and posttests, (H4), and that there would be statistical differences in mean scores between pre- and post-tests in the control groups, (H5).

Table 6. Paired sample differences in pre-post tests for experimental and control groups.

| Groups | Mean | Std. deviation | Std. error mean | of | d. interval. the rence Upper | t value | Df |
|--------|------|----------------|--------------------|------|---------------------------------------|------------|----|
| EG1 | 43.2 | 6.5 | 1.5 | 39.9 | 46.5 | 28** | 17 |
| EG2 | 40.6 | 5.09 | 1.2 | 38 | 43.2 | 32.8** | 16 |
| EGs | 41.9 | 5.9 | 1 | 39.9 | 44 | 41.7** | 34 |
| CG1 | 24.7 | 4.7 | 1.1 | 22.4 | 27.1 | 22.3** | 17 |
| CG2 | 24.2 | 4.9 | 1.2 | 21.7 | 26.7 | 20.3** | 16 |
| CGs | 24.5 | 4.7 | .80 | 22.8 | 26.1 | 30.5** | 34 |

Notes:

EG1: Experimental Group # 1 EG2: Experimental Group # 2 ** P <.01

CG1: Control Group # 1 CG2: Control Group # 2

EGs: Both of the Experimental Groups CGs: Both of the Control Groups One might argue that the difference can be attributed to training, regardless of exposure to ice breaking. Taking into account the control over personal variables of participants in all groups, the random assignment of participants as well as the groups, the indifference between mean scores of all groups in pretests, and the high mean scores and confidence intervals for the experimental groups included in Table.6, it can be said that ice breaking sessions have had a positive impact on experimental group acquisition of skills. This finding supports our third hypothesis: that ice breaking sessions would produce differences in mean post-test scores between experimental and control groups.

Research Implications and Limitations

The findings of this study suggest that those involved in training programs should devote some time in the orientation phase of each training program to ice breaking activities. Otherwise, training programs may not yield the expected benefits. Ice breaking sessions are neither costly nor time consuming, yet they have a positive impact on training, releasing tensions among participants, and helping to overcome barriers among the trainees, on one hand, and with trainers, on the other. Findings also suggest that ice breaking is not limited to training settings. In fact, it can be applied in other contexts such as education, meetings, socialization of newcomers to an organization, task work, or any type of activity that requires interaction and group effort.

No direct previous studies were found to be compared with the findings of the current study. Although all possible care was taken to increase the internal validity of the study by controlling variables that may affect outcomes, some personal factors such as participants' level of intelligence, personality type, nature of job were not taken into account when selecting participants and may have had an impact on the result of the training.

The external validity of this study should also be taken with caution. That is, the subjects of the experimental groups might have been exposed to external factors, between pre-test post-test period, that were beyond control and might have led to, or affected, the positive outcomes of the experiment. External validity can be improved by refining the findings of this study in other settings, such as education, meetings, negotiation, new employee reception and socialization. Gender, and cultural diversity variables in connection with the nature of the experiment conducted in this study is also worthy of closer examination by researchers.

Recommendations

Based on the findings of the study that ice breaking has a positive impact on trainees' interactions and skills acquisition, and for further utilization of ice breaking in training, the study recommends the following:

- 1. Training managers should encourage trainers to begin training programs with an ice breaking session at the beginning of the program. While the ice breaking session should be longer in the first day of training, a warm up short session in the following days, and a reflection on their experience for the day before can be enough.
- 2. Trainers who begin their training programs with an ice breaking session must prepare themselves very well in terms of the kind and nature of exercises and activities they select, and ensure that they are properly performed. It is a good idea to bring in a qualified expert to run some low impact aerobic exercise and stretches, in case the trainer can not do it. Harmful exercise or activities must be avoided. In particular, if there is any physical exercise, the trainer must make it clear that those who have any medical problems and hesitate to participate can wait, but watch or be assigned another task in the activity such as encouraging others, until the exercise is over, then join the group in subsequent activities.
- 3. Trainers must have all necessary materials ready in advance: pens, writing boards, drawing materials, cello tape, pencils, and so on. Charts, posters and other visual aids must be put up before the beginning of the session.
- 4. Cultural and religious values must be taken into account when selecting the ice breaking activities for a co-training program. For example, Muslim women may object to doing physical exercises with men during such sessions. Violation of cultural or social conventions may render ice breaking sessions futile and, indeed, erect personal barriers rather than break them down.
- 5. Trainers and professional organizations associated with training should develop ice breaking exercise and activities that fit the setting, gender, culture, and values. Such ice breakers must be revisited and evaluated, then modified based on studies and feedback from participants.
- 6. Regardless of the careful selection and effective application of ice breaking activities, the trainer must be knowledgeable in the training subject, familiar with different organizational environments and settings, and should apply different training methods that help bring about the benefits of ice breaking activities.

- 7. The study suggests that the time allocated for ice breaking activities should be approximately fifty minutes in the first training day, and about twenty minutes in the following training days.
- 8. It is recommended that the trainer have a training assistant when doing ice breaking. The assistant will help in organizing, giving directions and instructions, and encouraging the group to work together. When training a large group, it is recommended to divide them into subgroups. An assistant will be crucial in this case.

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أثر تمارين كسر الحواجز على تفاعل المتدربين وكسب المهارات: دراسة تجريبية

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المستخلص. تهدف الدر اسة إلى معرفة أثر تمارين كسر الحواجز (إذابة الجليد) على تفاعل المتدربين، وكسبهم للمهارات من خالل خمس فرضیات تم اختبار ها عن طریق تجربة. وقد تم توزیع المشاركين في الدراسة عشوائيًا إلى مجموعتين، مجموعة تجريبية ومجموعه ضابطة، وروعي في المشاركين تشابههم في الخصائص. أجرى اختبارًا أوليًا للمشاركين في المجموعتين حول موضوع التدريب، ثم طبقت تمارين كسر الحواجز على المجموعة التجريبية فقط، ودُربت المجموعتين بنفس المدرب على الموضوع نفسه في نفس بيئة التدريب. رُصدت تفاعلات المتدربين من خلال مؤشرات محددة أثناء حلقات التدريب في المجموعتين، وأجري اختبار بعدى للمجموعتين في نهاية البرنامج التدريبي. تـم إعـادة التجربة على مجموعتين أخريتين (تجريبية وضابطة)، وبنفس الظروف التي أجريت فيها التجربة الأولى. أشارت نتائج الدراسة إلى توافر أدلة كافية تدعم فرضيات البحث واستنتجت الدراسة أن لتمارين كسر الحواجز أثر إيجابي على تفاعلات المتدربين وعلي كسبهم للمهارات. وقد خلصت الدراسة بعدد من التوصيات التي تساعد على تطبيق أنشطة وتمارين كسر الحواجز في المجال التدريبي.