

TEACHING FOR SOCIAL CHANGE: A PALESTINIAN-ISRAELI CASE OF PEACE EDUCATION

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Abstract – *This paper reports on an educational programme that aimed to change prevailing attitudes of student-teachers and their pupils toward regional collaboration in managing water resources involved in the Israeli-Palestinian dispute. A curriculum dedicated to this issue was developed and implemented in five teachers' colleges in Israel: two Arab colleges, two Jewish secular, and one Jewish religious college. The student-teachers subsequently taught different versions of the new curriculum to junior high school pupils, as part of their practicum activities. The curriculum was intended to broaden student-teachers' and pupils' knowledge base concerning water use and management issues. It was assumed that the new knowledge acquired would support the development of concomitant belief systems and attitudinal changes regarding issues of peaceful coexistence. This intervention was based on cognitive theories of attitudinal change (Ajzen and Fishbein, 1980; Ajzen and Madden, 1986; Fishbein and Ajzen, 1975). Pre- and post intervention knowledge and belief questionnaires were developed and administered to the student-teacher sample (133 students) and to the junior high school pupils they taught (300 pupils). At the end of the programme, both Israeli Arabs' and Israeli Jews' perceptions about water were more realistic. They tended to perceive water as a regional resource that should be shared and treated cooperatively. However, within the Jewish student-teachers sample, religious Jewish student-teachers remained high in their separatist position, whilst secular Jewish student-teachers moved toward preferring collaboration. The results of our study show that although student perceptions toward sharing water resources were affected by their national and religious identity, these perceptions were not immutable. Education can play a role in preparing the people of our region toward cooperation and peaceful coexistence.*

Introduction

The present study began in 1995 and most of the data were collected during 1996. It was an expression of the hope that prevailed among many Israelis and Palestinians regarding a peaceful solution to the dispute between Jews and Arabs living in the region. Five years have gone by since the Oslo Declaration of Principles and four years since the Peace Treaty with Jordan. The euphoria that

accompanied these events has almost completely disappeared. In the present atmosphere, marked by the slowing down of the peace process, especially since the election of a right-wing government in Israel in 1996, the very fact that Palestinian and Israeli researchers cooperated in this study and accepted the possibility of living together in compromise, must be seen as a glimmer of hope. These Palestinian and Israeli researchers studied the possibilities to change prevailing public attitudes towards peace and cooperation with regard to the issue of water, one of the issues that captures the essence of the conflict between two groups competing for scarce resources.

Perspective

The dispute over water resources in the Middle East stems not only from the scarcity of water resources in the region, but also from their uneven distribution and the fact that they are shared by several geopolitical entities. Rapid population growth, urbanisation and industrialisation on the one hand, and increase in agricultural use of water, on the other, have been affecting both the quality and availability per capita of fresh water in many countries in the region. A situation of 'real conflict' can be said to exist between groups when they compete for scarce resources (Campbell, 1965; Coser, 1956; Le Vine and Campbell, 1972).

Israel and the Palestinian territories share the same problematic situation concerning water: all ground water aquifers are bisected by the border and the main watershed occurs in the Palestinian territories whilst the area where most of the water is consumed is on the Israeli side. This close vicinity causes not only problems of quantity but also that of quality. For instance, Palestinians who reside in the upper aquifer area could decide to set up zones of polluting industries there, affecting the groundwater of the lower aquifer from which Israel draws its waters. Moreover an asymmetry in the per capita consumption of water exists with Israeli consumption three times greater than that of the Palestinians. Thus the feeling of deprivation on the Palestinian side is high.

Ideological and religious factors stand in the way of finding a solution to this situation. Most national ideologies perceive water as part of their territories thus claiming accessibility and sovereignty over it within their defined territories. This is the case in the Zionist ideology, in the pan-Arabist ideology and in the individual Arab states' ideologies. Moreover, as agriculture is of utmost importance, ideologically or economically for most countries in the region, water is of great national importance. The religious Islamic point of view is rather different. According to Islam, water is perceived as God-given, belonging to all the people and thus not subject to private ownership, taxation or trade. These conflicting views

regarding water as territorial on the one hand and as a free substance on the other, make negotiations of acceptable solutions difficult to achieve for both sides.

In addition, peaceful solutions to the water problems demand willingness to compromise and to cooperate. In the existing psychological atmosphere of mistrust and fear, these attitudes are in low supply. Public opinion on neither side seems to be prepared for change, while it is exactly this that is extremely important for converting decisions about change into a reality of change.

Changing prevailing attitudes of youngsters toward regional collaboration in managing water resources was the scope of an educational intervention that was planned and executed. The main assumption underlying this intervention was that attitudes can be altered. Based on two sets of theories, one from the field of attitude change (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1977; Petty and Cacioppo, 1986) and another from the field of conflict termination – the epistemic approach to conflict termination (Kruglanski, 1980a,b; Kruglanski and Ajzen, 1983; Kruglanski and Klar, 1987; Bar-Tal, Kruglanski and Klar, 1989), it was assumed that exposing subjects to new information (persuasive message) should cause systematic cognitive elaboration (Petty and Cacioppo, 1986), change in salient beliefs, and ultimately in attitudes (Fishbein and Ajzen, 1975).

According to the epistemic approach to conflict termination, beliefs were regarded as subjectively held cognitive structures, schemas that contain specific contents. Beliefs about conflict contain information about the incompatibility of goals between parties (Bar-Tal, Kruglanski, and Klar, 1989). Conflict schemas can be resistant to change or 'frozen'. They can be 'unfrozen' when opened to new information and with the availability of critical ways of thinking and evaluation (Kruglanski and Klar, 1989). 'Unfreezing' of a conflict schema may lead to conflict termination (Bar-Tal, Kruglanski, and Klar, 1989).

Method

In line with these theories, the research team developed an educational programme aimed to broaden the knowledge base of young Israelis and Palestinians on topics related to the water dispute. It was believed that exposing youngsters to such a programme may lead to a change in beliefs, and ultimately in attitudes. The educational programme was developed and implemented in parallel in the two countries. The programmes were similar, but not identical. They followed the same guidelines and had the same aims, however each had slightly different emphases. In this paper we will report on the Israeli programme and on the impact it had on different groups of students in Israel: Jewish secular, Jewish religious, and Arabs.

The Israeli programme centered around the following topics:

- war and peace and the issue of water in the region;
- water as a substance, its properties and uses;
- the importance of water to living organisms and humans;
- use of water in industry, agriculture and domestic sectors;
- water as a global resource, factors affecting availability and consumption;
- underground water, main aquifers, technologies for using ground water;
- water balance of Israel and other Middle Eastern countries;
- technological solutions to water scarcity: desalination, transport, sewage, reclamation, cloud seeding, dams, etc.
- agreements, ways to settle disputes regarding water rights.

This curriculum was taught to student-teachers and was adapted for their pupils. After a learning phase which took place in the college, the project moved into schools where student-teachers had their practicum, and was taught by them to 6th or 7th graders during six weekly, four-hour classroom sessions.

Pre- and post-testing of knowledge and beliefs were carried out in the student-teachers and in the pupil populations. In the pupil population, however, the knowledge tests were administered only at the end of the project.

Instruments

The main instrument was a questionnaire aimed to measure attitudes. In building the attitude questionnaires we referred to a distinction between attitudes and beliefs made by Fishbein and Ajzen (1975), according to whom attitudes are built upon beliefs. Whereas attitudes refer to a person's favorable or unfavorable feelings toward an object, beliefs link this object to specific attributes. The probability that the object is associated with the attribute determines the strength of the belief, the more probable the association between the object and the attribute the stronger the belief. This probability is of course subjective. The totality of a person's beliefs multiplied by the strength of these beliefs serves as the informational base that ultimately determines that person's attitude.

Underlying this is a view of humans as rational organisms who use information to make judgments, evaluate and arrive at decisions. In the simplest way, beliefs are formed from experiences. However, they are also determined by information taught and by learning.

The aim of the curriculum offered to student-teachers and pupils in the present study was to expose them to information about water issues and to mediate the processing of this information and the construction of beliefs and of evaluative

judgments of these beliefs, i.e., the assignment of a value to the belief, a value representing the strength of the belief.

The above distinctions, stemming from attitudinal change theory (Fishbein and Ajzen, 1975), were considered in the construction of a questionnaire comprising 58 belief statements, regarded as salient to two basic attitudes: (a) favorable attitude toward the Israeli-Palestinian peace process, and (b) favorable attitude toward regional cooperation regarding water issues in the Middle East.

Attitudes in favor of peace, are generally based on beliefs associating peace with economic growth and welfare, national security, etc. Attitudes in favor of cooperation are based on beliefs of increased productivity and efficiency in collaborative endeavors. In our case, the relevant set of beliefs would involve the consequences or impact of cooperation on the availability and quality of water.

The questionnaire was developed by the team of Israeli and Palestinian researchers. The belief statements were then transformed to Likert-type items with five response options. The items in the questionnaire fell under five categories:

- I. A set of statements expressing beliefs regarding rights to use ground water or surface water in a situation in which this water reaches land in one country and is pumped into, or emerges from springs or rivers into another country.
- II. A set of statements expressing beliefs regarding criteria of water allocation (according to needs, present consumption, future consumption, population size, standard of living, geopolitical factors [history of use], rainfall in a country, international laws, and moral or religious principles).
- III. Statements expressing intention to act for the sake of peace: willingness to share, or reduce, or make more efficient, consumption, trade, develop alternative sources, import food, increase water price.
- IV. Statements expressing beliefs in the importance of water to a country and the unwillingness to give up or to share it.
- V. Statements expressing preference for either separate or joint water management policy.

A selected list of 26 items from the above 58 was used to develop a parallel questionnaire for pupils. The same classification of items was used, but fewer items were selected for each category.

The knowledge questionnaire contained 29 items of various types: multiple choice, short answers and extended response items covering all aspects of the water curriculum mentioned previously, and assessed the gain in knowledge of student-teachers. A similar, but smaller test was developed to assess pupil's knowledge gains after the intervention. A detailed coding manual to score the open-ended items was developed and checked for reliability.

TABLE 1: Mean and SD of Pre- and Post-Responses of Student-Teachers to Items Appearing in 'For the Sake of Peace' Factor

Item	Mean (SD)
A3 Rainfall belongs to both countries equally	3.5 (1.0)
A14 FSOP reduce personal intake of water	3.7 (1.2)
A15 FSOP allocation to tourism should be curtailed	3.3 (1.1)
A16 FSOP consumers should be curtailed	3.1 (1.1)
A17 FSOP mountain aquifer should be shared	3.4 (1.1)
A19 FSOP consumption gap should be closed	3.2 (1.2)
A20 Alternative sources of water should be developed to close the gap	3.8 (0.9)
A25 Regional water should be divided according to current needs	3.1 (1.0)
A26 Regional water should be divided according to population size	2.8 (1.0)
A31 Regional water should be divided subject to international laws	3.5 (0.9)
A34 Regional water management is not preferable	2.6 (1.1)
A39 Every human being has equal rights to water	4.4 (0.8)
A40 Divide equally between all	4.2 (1.0)
A46 Priority should be given to agricultural countries in allocating water	3.2 (1.0)
A51 According to religion ...equal rights	3.9 (1.1)

FSOP = For the sake of peace

Sample

The educational programme was implemented in Israel in six teacher colleges: two Jewish secular teachers colleges, one Jewish religious teachers college and two Arab teachers colleges. One hundred and thirty-three student-teachers from these colleges taught about 300 pupils from upper-elementary grades and junior high school. Only four of these colleges (two Jewish, two Arab) provided both pre- and post-questionnaires which could be used for measuring changes. Pairs of pre- and post-questionnaire responses of student-teachers were obtained from only 50 student-teachers and from 273 pupils.

Data analysis

This paper focuses on attitudinal change that occurred among Israeli youngsters. We will report only on the analyses and findings related to the

TABLE 2: Mean and SD of Pre- and Post-Responses of Student-Teachers to Items Appearing in 'Separation and Cooperation' Factor

Item	Mean (SD)
A6 The country in which the source of a river is located can exploit its waters	2.4 (1.2)
A7 A country that has used water in the past has a claim to those waters in present and future	2.5 (1.0)
A8 Country where water penetrates the land has right to use this water from wherever	2.9 (1.2)
A9 Water belongs to country where its is produced or into which it is pumped	3.5 (1.1)
A12 Water is a national resource	3.5 (1.2)
A33 Every country should manage its own sources of water	3.4 (1.0)
A35 Every country should treat its own water	3.2 (1.0)
A41 Water is important to economic development	4.4 (0.7)
A42 For the sake of economic welfare water can be taken from anywhere	2.7 (1.1)
A49 Rain water falling in Israel belongs to Israel	3.2 (1.2)
A56 People who own gardens waste water	2.9 (0.9)
A57 Water is a problem for engineers not politicians	2.8 (1.2)

attitude questionnaires. Principal component factor analyses with oblique rotation for three factors were performed on student-teachers' and on pupils' pre- and post-responses to the attitude questionnaire. It was expected that the analyses would yield factors that represent belief structures in accordance with the two target attitudes of the study: favoring the peace process and favoring regional cooperation. The three factors that were extracted from student-teacher responses (Kaiser's measure of sampling adequacy overall [MSA=0.489] explained approximately 27% of the total variance. The contribution of each of them respectively was 13%, 8% and 6%. The three factors that were extracted from the pupil responses (MSA=0.63) explained approximately 28% of the total variance). The contribution of each of the factors respectively was 12%, 10%, and 6%.

On the basis of the factor analysis six indices were constructed consisting of the means of all the items loaded on each of the factors. Three indices described attitudes of student-teachers and three described those of the pupils. Using these indices, scores were assigned to the respondents. Tables 1, 2, and 3 present the items included in each factor together with their means and standard deviations

TABLE 3: Mean and SD of Pre- and Post-Responses of Student-Teachers to Items Appearing in 'Solution and Behavior' Factor

Item	Mean (SD)
A2 Rain that falls in one country and is pumped into another country belongs to the country into which it is pumped	3.1 (1.1)
A4 Rainfall belongs mainly to the country that pumps it	3.0 (1.0)
A10 Excess waters can be marketed among countries	3.7 (1.1)
A13 Import agricultural produce in order to save water	3.3 (1.1)
A18 Reduce Israel's consumption in order to save	3.4 (1.2)
A23 Transfer of the mountain aquifer to the Palestinians means disaster for Israel	2.9 (1.2)
A24 In exchange for mountain aquifer Palestinians should receive desalinated water	2.8 (1.1)
A27 Water should be divided according to size and standard of living	2.8 (1.1)
A29 Water should be divided according to future needs	3.1 (1.0)
A36 Regional treatment of drainage water is not a good idea	3.5 (1.0)
A37 Define vital pumping area and do not give up any	3.4 (1.1)
A45 Important to find solutions	4.1 (1.1)
A48 Rainfall on Palestinian territories is theirs and no one else's	3.0 (1.2)
A50 Water can be cause of war	4.1 (0.9)
A53 Act according to religion and forbid water contamination	2.5 (0.9)
A55 In households water is used in a wasteful way	3.0 (1.1)

for the student-teacher questionnaire. Tables 4, 5, and 6 present the items included in each factor together with their means and standard deviations for the pupil questionnaire. Items that were highly loaded with the factor are printed in bold. These items served for the construction of the above-mentioned indices. The means of the items give us a rough idea on the position of the respondents regarding each item on a 1-5 scale.

Cronbach's Alpha was calculated for each of the indices. Given the found similarity in contents of the two sets of indices, the names assigned to the indices in the two populations were identical. Table 7 presents the values of Alpha for each index by index name, for the student-teacher response indices and the pupil response indices, respectively. Appearing in brackets is the number of items included in each index.

TABLE 4: Mean and SD of Pre- and Post-Pupil Responses to Items Appearing in 'For the Sake of Peace' Factor

Item	Mean (SD)
A9 I am willing to reduce my personal water intake for peace	3.5 (1.4)
A11 Water consumption in Israel is twice that of the West Bank, FSOP this gap should be closed	3.0 (1.3)
A12 Even FSOP high quality water should not be relinquished	3.1 (1.4)
A14 Regional cooperation is needed to solve the water problem	4.1 (1.1)
A15 Every human being has equal rights to water	4.2 (1.1)
A22 Without solution to water shortage there can be no peace in the region	3.4 (1.2)
A24 Water from rivers that cross Israeli and Palestinian territories should be equally divided	3.6 (1.3)
A25 If water is scarce for a long time, my country should collaborate with other countries in trying to find a solution to this problem	4.2 (1.0)

FSOP = For the sake of peace

TABLE 5: Mean and SD of Pre- and Post-Pupil Responses to Items Appearing in 'Separation and Cooperation' Factor

Item	Mean (SD)
A4 Rainfall belongs mainly to the country that pumps it	3.8 (1.2)
A5 Water is a national resource and should not be relinquished	4.0 (1.2)
A6 For Palestinians water is vital and should not be traded	3.6 (1.2)
A7 For Israelis water is vital and should not be traded	3.9 (1.1)
A13 Every country should manage its own water sources	3.8 (1.1)
A17 It is not ethical to take water to advance one country at the expense of another	3.7 (1.3)
A19 Rain which falls on the Palestinian territories is only theirs	3.4 (1.3)
A20 Rain which falls on the Israeli territories is the Israelis' only	3.6 (1.3)

TABLE 6: Mean and SD of Pre- and Post-Pupil Responses to Items Appearing in 'Solution and Behavior' Factor

Item	Mean (SD)
A1 Rain water belongs to the country where it fell	3.1 (1.2)
A2 Rainfall that falls in one country and is pumped into another country belongs to the country into which it is pumped	3.3 (1.1)
A3 A country that has used water in the past has a claim to that water in the past and in the future	2.5 (1.3)
A8 In order to conserve water agricultural produce should be imported instead of grown	3.1 (1.2)
A10 We should divide water equally with the Palestinians	3.3 (1.3)
A16 If the amount of rain water is not enough we must pump it from any source	3.6 (1.1)
A21 Water is a problem for engineers not politicians	2.8 (1.3)
A23 I am for raising the price of water in order to save it and prevent contamination	2.9 (1.3)

Pre- and post-attitudinal change

The indices developed made it possible to study attitudinal changes in the two populations, the student-teachers and their pupils. The three factors identified in the responses of student-teachers could easily be matched with those that emerged from the analysis of pupil responses. A pre- post t-test for each of the indices in both populations sorted by national identity (Jews/Arabs) was conducted. Another classification of the two populations – student-teachers and pupils – took into consideration whether Jews were religious or secular. Thus three groups were formed in this second categorisation. Our choice to relate to religiousness stemmed from the fact that the Jewish religious population is known for its extreme separatist political views. Table 8 and 9 provide the pre- post comparisons of student-teacher attitudes.

The findings presented in Table 8 show the effect of the educational intervention. Jews showed a significant increase in their favorable attitude towards peace. There was no significant change in their attitude toward cooperation. The Arab respondents did not exhibit change on the peace index, perhaps because their scores were high to begin with. On the separation-cooperation index there was a significant change in their responses in the direction

TABLE 7: Cronbach Alpha Values for Attitude Indices of Student-Teachers and Pupils

Index	Cronbach's α for student-teachers (no. of items)	Cronbach's (for pupils (no. of items)
For the sake of peace	0.84 (15)	0.41 (7)
Separation (Cooperation)	0.70 (12)	0.60 (8)
Solution - behaviors	0.67 (16)	0.53 (7)

TABLE 8: Pre- and Post-Comparisons of Mean Scores on the Attitude Indices: Jewish and Arab Student-Teacher Responses

	Jews			Arabs		
	Pre n=48	Post n=36	t	Pre n=85	Post n=13	t
For the sake of peace	3.1 (0.7)	3.5 (0.7)	-2.7**	3.6 (0.4)	3.6 (0.2)	-0.7
Separation	3.3 (0.5)	3.1 (0.6)	1.7	3.0 (0.5)	2.5 (0.3)	5.5***
Solution - behaviors	3.3 (0.5)	3.6 (0.4)	-3.6***	3.0 (0.4)	3.5 (0.2)	-4.2***

* p<0.05

** p<0.01

*** p<0.001

TABLE 9: Pre- and Post-Comparisons of Mean Scores on the Attitude Indices: Religious and Secular Jewish Student-Teacher Responses

	Religious Jewish Student-Teachers			Secular Jewish Student-Teachers		
	Pre n=15	Post n=13	t	Pre n=33	Post n=23	t
For the sake of peace	2.9 (0.7)	3.6 (0.7)	-2.6*	3.2 (0.6)	3.5 (0.6)	-1.5
Separation - (Cooperation)	3.7 (0.5)	3.6 (0.7)	0.8	3.2 (0.5)	2.9 (0.5)	2.1*
Solutions	3.4 (0.5)	3.8 (0.3)	-2.1*	3.2 (0.4)	3.5 (0.4)	-2.8**

* p<0.05

** p<0.01

*** p<0.001

of greater willingness to cooperate. Both groups showed significant change and in the desired direction on the solution behaviors index.

Table 9 presents the differences between religious and secular Jews.

We note that religious Jewish student-teachers showed a significant change in attitude in the direction of favoring peace and no change in attitude toward cooperation. The secular student-teachers showed a change in attitude toward favoring cooperation and no significant change in the direction of peace. Analysis of data collected from pupil responses showed no significant changes in attitudes toward either peace or separation, although on both pre- and post-measures, pupils hold a more extremist view than student-teachers. These data are presented in Tables 10 and 11.

TABLE 10: Pre- and Post-Comparisons of Mean Scores on the Attitude Indices: Jewish and Arab Pupil Responses

	Jewish Pupils			Arab Pupils		
	Pre n=177	Post n=177	t	Pre n=133	Post n=96	t
For Sake of Peace	3.6 (0.6)	3.6 (0.6)	0.7	3.5 (0.6)	3.5 (0.6)	— 0.35
Separation	3.7 (0.3)	3.6 (0.7)	1.6	3.8 (0.7)	3.8 (0.5)	0.3
Solution -Behaviors	3.0 (0.5)	3.0 (0.5)	0.40	3.1 (0.6)	3.3 (0.6)	— 3.4***

* p<0.05 Peace – change in the expected direction

** p<0.01 Separation – no change, higher from beginning, significant change is expected

*** p<0.001 Solutions – significant change in the direction expected

TABLE 11: Pre- and Post-Comparisons of Mean Scores on the Attitude Indices: Religious and Secular Jewish Pupil Responses

	Religious Jewish Pupils			Secular Jewish Pupils		
	Pre n=43	Post n=43	t	Pre n=134	Post n=134	t
For the-sake of peace	3.5 (0.6)	3.6 (0.6)	-0.6	3.7 (0.6)	3.6 (0.6)	1.1
Separation - (Cooperation)	3.8 (0.7)	3.6 (0.6)	0.9	3.7 (0.6)	3.6 (0.7)	1.3
Solutions	3.2 (0.6)	3.1 (0.5)	0.7	2.9 (0.5)	2.9 (0.5)	0.04

* p<0.05 ** p<0.01 *** p<0.001

Conclusions

In this paper we report only on the changes in attitudes as inferred from changes in the mean scores of two sets of indices. These were derived from a factor analysis on student-teachers' and pupils' responses to the attitude questionnaires. The two sets of indices from the two populations were similar in their content.

One index, used in both populations, described readiness to act for the sake of peace (share, compromise, collaborate, consume less, etc.). Underlying this index is a favorable attitude towards peace and awareness that solving the water conflict is essential for peace.

Another index describes beliefs in favor of separatism. Water belongs to and should be managed by each country separately and should neither be shared nor be traded. This index describes a dimension ranging from separation to collaboration; high scores on this index, in both populations points to an attitude against cooperation.

The third index includes statements that describe solutions to the water problem, mainly actions people can take in order to increase availability and quantity of water. This index is a neutral one and is not associated with any political stance. It is approved by both those who are in favor of peace or against it, in favor of collaboration or in favor of separatism. The gains on this scale were the highest. This attitude should be regarded as a pre-disposition to act or as the intention to perform various behaviors. Fishbein and Ajzen tend to regard behavioral intention as distinct from mere attitude which is only related to an evaluative response rather than to a behavioral one.

Our findings show that the changes the Arab student-teachers went through during this programme were more distinct than those exhibited by the Jewish student-teachers. To start with their prior attitudes were more positive towards peace and more negative towards separation, than those of the Jewish student-teachers. Their post-intervention reactions are more in the desired direction than those of the Jewish student-teachers. The Jewish student-teachers were found to be very polarised in their attitudes toward peace and toward collaboration. In the pre-testing religious student-teachers scored much lower than secular student-teachers on the three indices. However at the end of the of the programme both religious and secular Jewish student-teachers scored equally high on the peace index. On the separation index religious student-teachers remained high in their separatist position while secular student-teacher moved towards preferring collaboration. This attitude was found to be distinctive, differentiating between religious and secular Jews. It should be noted that the knowledge base on water issues of the religious student-teachers in comparison to the secular student-teachers was found to be poor.

The minor changes in the indices found among pupils might be a result of difficulties in understanding the questions used in the questionnaire. While executing the study we noticed such difficulties. Another possible interpretation is that the learning process was more effective for the student-teachers than for their pupils. Studying the subject once as students and then going over it a second time, now as teachers, contributed to a better understanding of the information and to an increase in the strength of beliefs that later on served as a basis for the construction of relevant attitudes.

The findings of our study show that although people's perceptions about sharing water are affected to a large extent by their national and religious identity and their political ideologies, these attitudes can change.

A recent study on the perception of water as part of territory in Israeli and Arab ideologies carried out between 1964-1993 (Copaken, 1996) supports our findings. Her study used media reports that appeared in Israel, the Palestinian territories and some Arab countries and analyzed their contents. The source of these documents was the US Foreign Broadcast Information Service (FBIS) which cited the above reports. The main findings of this study were the following:

Arab and Israeli perceptions of water were found to be strongly associated to political or religious ideology, whether socialist Zionist, pan-Arabist, Arab nationalist, Islamic or a combination of these. All of these ideologies assign a special role to water as a communal resource related to a defined territory. In Zionism, the community referred to consists of Jewish people in 'Eretz Yisrael'; in pan-Arabism the entire Arab population of the Middle East; in Arab state nationalism, the citizens of the individual Arab country, and in Islam, the world community, as no ownership claims and no trading of water is allowed according to Islam.

As regards Israelis, from the sixties to the nineties, a change occurred in their attitudes towards water. Water has moved from being perceived as a national resource, where the good of the Israeli nation-state is of top priority, to being regarded a regional resource that can be negotiated and shared.

As regards the Arabs, the trend has been to move away from perceiving water as a pan-Arab resource in the 60's to perceiving it as a national resource in the 1980's and 1990's. According to Copaken, the third phase of perceiving water as a regional resource has not yet occurred in the Arab States or the Palestinian Territories.

In Copaken's findings, it was noted that water's territorial characteristic inspires nations to claim full sovereignty over it despite the fact that its mobility makes this an almost impossible task. In Israel, only in the 90's, the recognition of the futility of attempting to attain absolute sovereignty over water occurred. This has not yet happened in the Palestinian case.

The decline in separatist views that was found in our study, can be interpreted as moving toward perceiving water as a regional resource. The similarity between secular Jews and Arabs living in Israel in this regard is striking. It seems that both the secular Jewish student-teachers and the Arab student-teachers in Israel do perceive water as a regional resource, and they are willing to cooperate and resolve the problem.

The findings in our study point to the fact that in spite of the ongoing dispute and the difficulties of the peace process, both Israeli Arabs' and Israeli Jews' perceptions regarding water, at the end of a short educational programme, are more realistic and more in favor of perceiving it as a regional resource that should be shared and treated cooperatively. These findings point to the role education can play in preparing people in our region for cooperation and peace.

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