

# INCREASING THE SCHOOL ATTENDANCE OF NATIVE STUDENTS: AN APPLICATION OF COGNITIVE EVALUATION THEORY <sup>1</sup>

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## ABSTRACT/RESUME

This study assesses the effectiveness of an educational program in reducing the school drop-out rate of native students. The underlying premises facilitating students' sense of self-determination, nurturing their sense of self-respect and competence, and allowing for mastery and application of school-based knowledge in non-threatening real-life situations, would lead to an increase in intrinsic motivation toward school that would translate into increased school attendance. The program blended traditional curriculum with three special projects and was effective in motivating students to attend and remain in school until the end of the year. These results support cognitive evaluation theory and Native education programs which propose that nurturing students' feelings of self-determination and competence should reduce school drop-out behavior.

Cette étude évalue l'efficacité d'un programme d'éducation réduisant le tause d'étudiants natifs qui abandonment leurs études. Soulignant l'assamptian facilitant l'étudiant à fair face à sa determination, mourrir leur sense de respect de soi-même et l'application base sur la connaissance écolière dans aucune situations réelles menagantes, conduirait à une augmentation intrinsèque de motivation en direction de l'école qui se traduirait en une augmentation de presence à l'école. Ce programme mêlait un curriculum traditionnel avec trois projects speciaux et efait efficace pour motiver les étudiants à se rendre et à rester en classe jusqu'à la fui de l'annee scolaire. Ces résultats supportent une évaluation théorique cognitive et les programmes d'éducatons native qui encouragent les étudiants sentiments de determination et de competence devrait réduire les abandons scolaires.

In recent years, much research has been conducted in order to compare occupations of native and non-native Canadians. This research clearly indicates that occupational inequality exists between natives and non-natives in Canada (Darroch, 1979; Lautard, 1982). Unmistakably, native Indians (both on and off reserve) are always at the bottom of the occupational status ladder. Clearly, such a status position may have negative consequences at several levels for native people. For instance, occupational status has been found to correlate with poor health (Taylor, Aday, & Andersen, 1975), mental health problems (Warheit, Halzer, & Schwab, 1973), and crime (Lauer, 1982). Thus, the occupational inequality of native people would appear to be an important problem to tackle.

While several reasons could be posited in order to explain this occupational inequality between natives and non-natives in Canada, it is felt that the low level of education of native people may be chiefly responsible for their low occupational status. Indeed, it has been found that a very small percentage of the native population has an elementary school degree and that even fewer have a high school diploma (McKee & Robertson, 1975). It is a well-known fact that the drop-out rate displayed by natives is extremely high at both the elementary and high school levels (Bowd, McDougall, & Yewchuk, 1982; Cardinal, 1975; Carment & McCoy, 1984). Without education it becomes virtually impossible to find work, and thus native people remain at the bottom of the socio-economic strata.

To say that traditional educational systems have failed with native people would be an understatement. A past spokesman for the Indian Association of Alberta recently offered the following:

"Educators, your systems have failed, and are continuing to fail, the Indian people. Your own statistics show that on the average 95% of Indian people fail to reach grade 12 . . . Educators try their best to make us believe that we are the failures rather than themselves, and many of them succeed in damaging our children . . . Your programs are irrelevant to our people" (Cardinal, 1975: 19).

In light of the apparent failure of traditional educational programs (Cardinal, 1975; Kirkness, 1975; Luftig, 1983) and yet the importance for Indians to receive some form of education enabling them to bridge the gap of occupational inequality with non-native Canadians, it becomes important to turn our attention to some programs that may have been effective in motivating native Indians toward education. Two such programs are those of Mt. Currie, British Columbia, and the Ventura Unified School District of California.<sup>2</sup>

#### A LOOK AT SOME INDIAN EDUCATION PROGRAMS

The Ventura Program (Fendrick, 1981) is one of California's largest Indian Education projects. The program involves 20 elementary schools, 4 junior high

schools, and 3 high schools. After four years of existence (as of 1981) program enrollment has grown from 45 to close to 800 students. More than 20 tribes participate in the program (major tribes include the Chumash, Cherokee, Navajo, Apache, Blackfoot, Chickasaw, Creek, Choctaw, and the Seminole). The K-12 program, directed by Indians under the Indian Self-Determination Educational Assistance Act (P.L. 93-638), incorporates a blend of traditional curriculum with Indian cultural heritage. Special education services play a major part at the K-6 level focusing on students who may not master traditional skills (especially English). The program provides for on-site tutoring of small groups and classroom instructional support. Major objectives at the secondary level deal with career and counselling support in terms of college scholarship information and job opportunities. When deemed necessary, academic tutoring is provided. Finally, there is a continued emphasis on Indian heritage and culture.

In addition to these activities, the Ventura Program incorporates special cultural elements in the curriculum. For instance, social studies may include tipi building and decoration, totem building, as well as kachina dolls, sand painting and weaving projects. Further, the Indian Cultural Faire (apparently an annual event held on one day) regroups several elementary and secondary schools. With the help of teachers and Indian parents, children from each school display a variety of Indian crafts (weaving, beading, clothing, and artifacts) representing various Indian cultures from the United States. Finally, self-determination representing an important issue in the program, the Indian Parent Committee has been involved in various tasks ranging from helping to determine the budget to selecting staff for each school year since the beginning of the program.

The Mt. Currie Program (Wyatt, 1977) is remarkably similar to the Ventura program. The Canadian program is directed by an all-Indian board of education which emphasizes that traditional curriculum must be synthesized with cultural heritage and activities. It is felt that a structural curriculum should remain but modification in the content of that curriculum be made in order to adjust to the special needs of native Indians. For instance the K-12 program, which has grown from 150 to 500 (as of 1976), has supplemented basic guidelines in curriculum set out by the British Columbia Department of Education with 1) classes in the native language at all grade levels; 2) native songs and dances taught by community resource people; 3) social studies and literature curricula in secondary grades focusing on contemporary life; and finally, 4) work-study programs providing students with work experience while involving the community in the school curriculum.

While no formal program evaluation has been performed on the Ventura and Mr. Currie programs, the enormous increase in school attendance reveals, at least, that the programs meet Indians' needs and expectations in education. Indeed the two programs blend traditional curricula with other activities which result in facilitating the students' sense of competence, self-respect, and self-determination. Further, by involving the community in the educational process, the students' success in school reflects on the overall community and represents a source of pride for all.

## COGNITIVE EVALUATION THEORY AND INDIAN EDUCATION

A psychological theory that helps us understand why such a practice is effective in motivating native Indians toward school is cognitive evaluation theory (Deci, 1975; Deci & Ryan, 1980; in press). Deci (1975, 1980) suggests that individuals have an innate need to feel competent and self-determining in relation to the environment. This need to feel competent and self-determining, according to Deci, is the underlying basis of intrinsic motivation. According to this position, people are intrinsically motivated when they perform activities in order to feel competent and self-determining; in other terms, to attain self-determined mastery of the environment. On the other hand, people are extrinsically motivated when they engage in activities for extrinsic rewards (e.g., money, social status, etc.) or constraints.

Deci and Ryan (1980) have postulated cognitive evaluation theory in order to explain and predict changes in intrinsic motivation. According to this theory, changes in intrinsic motivation can take place through two processes: the locus of causality and the perceived competence processes. With respect to the former, when people feel pressured or coerced to do something, when actions are not self-determined, a decrease in intrinsic motivation follows. Conversely, when there is opportunity for choice and self-determination, intrinsic motivation is enhanced. The perceived competence process, on the other hand, deals with task performance evaluation. When one evaluates his (her) performance to be successful, an increase in feelings of competence takes place resulting in an increase in intrinsic motivation. However, if the performance is evaluated to be unsuccessful, a decrease in feelings of competence is experienced which leads in turn to a decrease in intrinsic motivation. Intrinsic motivation research tends to support cognitive evaluation theory (see Deci & Ryan, 1980; in press; Vallerand, 1981, 1983; Vallerand & Halliwell, 1983; Vallerand & Reid, 1984).

This distinction between intrinsic and extrinsic motivation seems important from an educational perspective because it suggests that students may be motivated to come to and remain in school for intrinsic or extrinsic reasons. Cognitive evaluation theory helps us understand when and how intrinsic motivation may be decreased. According to the theory, this is most likely to take place if students feel incompetent and overly controlled by the teachers and the educational structure. When this occurs, one of two things may happen. First, some students may come to school motivated by extrinsic incentives (e.g., grades, future job, etc.). Second, because these same extrinsic incentives may not be appealing, some students may stop going to school. They are not motivated neither intrinsically nor extrinsically to come to school. Based on our analysis of native Indians and especially the Dene, who served as subjects in the present study, we feel that this is the case with native students. Two major points seem to emerge from an understanding of Dene culture. First, it appears that they are constantly motivated to learn and master their environment. The Dene want to be competent in all realms of their existence, including medicine powers and bush skills (Ridington, 1982). And secondly, it is very clear that such learning and growth must be *self-determined*. While the Dene seek mastery

and knowledge of their environment, such knowledge must be discovered by them and not imposed upon them (Ridington, 1982). Thus, the Dene, at every stage of the life cycle, strive for self-determined competence in relation to their environment.

Because of their strong apparent need to feel competent and self-determining, the Dene appear to be highly intrinsically motivated people. When they come to school they expect to have a say in their education, to have opportunities for choice and self-determination. When they realize that this is not the way school works they lose their intrinsic motivation toward school and, extrinsic incentives found in the school environment being meaningless to them, they may drop out. Further, most native Indians start school at a disadvantage, having to learn subjects that seem far remote from their everyday living. It does not take long before they fall behind in school and feel incompetent and ashamed. This again undermines intrinsic motivation and may lead them to drop out of school.

What are the educational implications that can be derived from the above analysis of the Indian education literature and cognitive evaluation theory? A logical one is that if school is to be successful with native Indians, such as the Dene, the need to feel competent (Deci, 1975; Foerster & Soldier, 1977; Luftig, 1983) and self-determining (Deci, 1980; Fendrick, 1981; Kirkness, 1976; Wyatt, 1977) must be fulfilled. This means that students must be actively involved in their education. They must be able to choose among alternatives. They must feel responsible for their own education. Further, students should be able to see the relevance of what they are studying. If they see the importance of what they are doing and if it is presented in an interesting way, students will be motivated to master the learning activity. They will strive for competence. With patient and sound teaching coupled with an educational program that meets students' needs for self-determination and competence, it is felt that it is possible to facilitate the intrinsic motivation of native Indians toward school and consequently to increase school attendance and participation.

Thus, in light of the importance of reducing drop-out behavior of native Indian students, an educational program based on the relevant Indian education literature and cognitive evaluation theory was designed, implemented, and assessed. More specifically, the program's effectiveness in motivating native Indians to come to school and to remain in school for an entire academic year was assessed. The program and its assessment are reported below.

## THE FORT RESOLUTION PROGRAM

The program was designed for male and female Dene Indians from Fort Resolution, North West Territories, who attended one class (grouping grades 7 - 9) at Déne-Noo School. The major premise of the program was that if school is made interesting, fun, and intrinsically motivating, students will come to school and remain in school. Then, learning, guided by intrinsic motivation, will take place. This was done by providing self-determination to the students in their own education and by attempting to enhance the students' sense of com-

petence and mastery both inside and outside of school.

In line with the Ventura and Nit. Currie programs, the Fort Resolution program emphasized the synthesis of a traditional curriculum and special projects. Further, while the D  n  -Noo school was not run by an Indian school-board, the program emphasized a close tie with the community. Indeed, in addition to a traditional curriculum for this particular age group, the program included three special projects each of which was previously submitted to and accepted by the Local Education Committee (D  n   Committee) and local agencies involved. Two of these projects (Outdoor Activities and the Job Experience project), or at least some version of them, had been used apparently successfully in other programs (see Fendrick, 1981; Foerstner & Soldier, 1977; Wyatt, 1977).

The first of these special projects involved *Outdoor Activities*. Table 1 indicates the type of activities organized under this project. The purpose of this project was to enhance students' feelings of competence by having them perform activities which they enjoy and may already show proficiency at (e.g., orienteering, camping). Students were in charge of organizing most of these events. This helped them develop organizational skills as well as fulfilling their need for self-determination. Further, these outdoor activities lent themselves to the real-life application of knowledge gained in school subjects (e.g., geography, maths, etc.) Finally, focusing on certain Indian activities such as Tipi building ensured that Indian cultural heritage was inherent to the program. *This served to enhance their sense* of self-respect and pride. It also involved the community in the various activities.

The second project was the *Job Experience Project*. Each week students *chose* an agency (see Table 2) they would work at on a volunteer basis for half a day. Students would report to their agency after lunch on Thursday and remain there until at least 3:50. This gave students the opportunity to discover the "ins and outs" of the job, to learn and master new skills, to apply knowledge learned at school, to develop a sense of responsibility, and to identify educational requirements for the job. This should serve as an incentive to come back to school and pursue education. The following day, students completed a question-

TABLE 1: Various Activities Organized in the Outdoor Activities Project

1. Carnivals 
 ↗ spring  
 ↘ winter
2. "Rat nose" Jamboree
3. Orienteering
4. Camping/Field Trips
5. Tipi building
6. Picnics

TABLE 2: Placement Agencies Used in the Job Experience Project

1. Sawmill
2. School: 1) Secretary  
2) Teaching Assistant
3. R.C.M.P.
4. Hudson Bay Company: 1) Clerk  
2) Post Office
5. Settlement Office
6. Band Office
7. Old folks home
8. Hunter Bros. store
9. Department of Public Works
10. Nursing station
11. Radio Resolution (3 placements)
12. Forestry
13. Airport
14. Housing Office

naire regarding their placement. The purpose of the questionnaire was to lead students to focus on what happened at the agency and integrate learning aspects of the job. The following weeks students again chose a placement until they had participated in as many placements as they were interested in. It should be noted that students who did not attend school in the morning that day were ineligible to participate in the project.

The third educational project, and perhaps the most successful teaching tool, was the radio station. The radio station started out of personal interest from the second author. He bought a transmitter, cut down two trees, strung up wire antennae and connected it to his stereo equipment at home. Radio Resolution was born! Initially, the radio station operated Sunday to Thursday evenings from 8-9:30. Programs were music oriented and the radio station founder did all the "shifts". Then, as part of the Job Experience Project, three students every week were given one half-hour to program. Eventually the radio station programmed from 8-11 on Sunday-Thursday evenings, thereby creating ten time slots of one and one-half hours each. Students were trained in the operation and technical aspects of radio. They would write up and tape their program, and air it on a later day.

The Radio Project was very popular and instilled pride for both the participating students and their parents as well as others in the community, who listened intently to the radio station. However, the purpose of the project went beyond this, as the radio station served as a real training ground for students who had to directly apply knowledge learned in school. Table 5 lists various elements which had to be mastered by the students in order to success-

TABLE 3 : Elements to be Mastered in Order to  
Successfully Broadcast a Program

1. PERSONAL LEVEL
  - 1.1. Overcome shyness
  - 1.2. Be responsible (e.g., on time)
  - 1.5. Organizational skills
  
2. LANGUAGE - ARTS
  - 2.1. Must have adequate vocabulary
  - 2.2. Must be able to read
  - 2.3. Must be able to write
  - 2.4. Pronunciation should be correct
  
3. MATH
  - 3.1. Calculation of how many songs can be played and how much time they can talk
  - 3.2. Use of a questionnaire (survey) designed to determine data on listener response
  - 3.3. Analysis of the data of the survey and
    - Tabulation of results
    - Calculation of percentages
    - Construction of bar and circle graphs
  
4. SCIENCE
  - 4.1. Technical aspects of radio
  - 4.2. Rules and regulations of Canadian Radio and Television Commission

fully broadcast a program. One can see that a successful broadcast represented quite an accomplishment, providing students with intense feelings of competence and pride. An interesting point is that the radio station and related matters (e.g., survey of ratings, see Table 3) were used at school in order to help students understand basic concepts in various subjects. Further, at graduation a display was set up that included photographs of each student "on the air" as well as charts of the survey results. Finally, it appears important to reiterate that outside of the three projects, school subjects were taught as usual. However, it would probably be safe to say that students could now relate much better to materials taught in class due to the application of such materials in the different projects.

## ASSESSMENT OF THE PROGRAM'S EFFECTIVENESS

### Assessment

The program's effectiveness in reducing school drop-out was assessed in the following way. Class attendance when the program was implemented was compared to class attendance when the program was not offered. Class attendance was recorded at three times during the year (September, December, and June) over three years. In the first year, the program described above was implemented and run by the second author. In the second year, the program was dropped due to administrative changes. During that year teaching remained strictly at an academic level. There was no Outdoor Activity Project and no Job Experience Project. Although the radio station remained, it was not related to the school anymore. The teacher was the same. Finally, in the third year there was a change in teacher. Again the program was not used. The class used for comparison was always of the same level (grouping grades 7-9) and was comprised of male and female Dene Indians whose ages varied from 14 to 20 years.

If the program was effective in reducing drop-out behavior, school attendance should be higher when the program was on than when it was off. On the other hand if the effectiveness of the program was due to the teacher, there should be no difference in attendance between the first two years. In both years, however, attendance should be higher than on the third year. Because attendance was recorded at three points during the school year it was possible to determine if the program was effective not only in reducing drop-out behavior but also in attracting new students to school. It was hypothesized that the program would be effective both in reducing drop-out behavior and in attracting new students to come to school.

### Results

The main results deal with school attendance for three years at different points during the school year. These results are presented in Table 4. These results indicate that attendance for subjects who participated in the program (year 1) increased from 15 to 53 at the Christmas break and finished at 24. The end point is substantially higher than the initial point. It should be emphasized that the 16 initial students all finished the year. Attendance for subjects who did not take part in the program (year 2) went from 12 to 16 (Christmas break) to 6. Thus a substantial decrease in attendance took place over the year. The 6 students who finished the year were present at the beginning of the year. Finally, attendance in the third year went from 12 to 8 to 5. The 5 students who finished the year were present at the beginning of the year. An interesting point to note is that there was an increase in attendance for two of the three groups at the Christmas break. This is due to the fact that the fishing and hunting season is over by that time. Thus children who leave to go fishing and/or hunting with parents, return to the village and can return to school.

The most informative way to look at these results, however, is to assess if

TABLE 4: Number of Students Attending School at Various Times  
As a Function of The Educational Program

	Start of year	Midpoint (Before Christmas)	End of year
Education Program (Year 1)	16	33	24
No Program (Year 2)	12	16	6
No Program (Year 3)	12	8	

the program succeeded in *attracting* students to school and if it managed to motivate students to *remain* in school. Table 5 deals with the former point. It is shown that the education program attracted more "later registrants" at school (8 vs. 0). Statistical analysis based on the hypergeometric distribution<sup>3</sup> (Owen, 1962) showed that the proportion of later registrants was significantly greater ( $p < .05$ , two-tailed) when the program was operative than when it was not. With respect to the proportion of students who remained in school (see Table 6), the same statistical analyses showed similar results. That is, a significantly greater ( $p < .05$ , two-tailed) proportion of initial students remained in school when the program was on than when it was off (100% vs. 50% and 42%). No differences were found between year 2 and year 3. Thus, the program was highly effective in motivating people to come to school and to remain in school and this effect was due to the program and not the teacher.

## DISCUSSION

Results of this study showed that a program which has the objective of facilitating students' need to feel competent and self-determining can be quite effective in motivating native Indian students to come to school and to remain in school. Indeed results showed that when the program was in operation, the dropout rate was 0%, while when it was not operative dropout rates of 50% and 42% were recorded. Further, the program managed to attract 8 new members who finished the year while no new members (0%) were recruited in two different years with a straight academic program. These differences were all significant. Thus, the educational program was effective.

TABLE 5: Initial and Later Registrants as a Function of The Educational Program and Straight Academic Teaching

	Registrants	
	Initial	Later
Educational Program (Year 1)	16	8
Straight Academic Teaching (Year 2)	12	0
Straight Academic Teaching (Year 3)	12	0

TABLE 6: Students Who Stayed and Left School as a Function of the Educational Program and Straight Academic Teaching

	Students	
	Stayed	Left
Educational Program (Year 1)	16	0
Straight Academic Teaching (Year 2)	6	6
Straight Academic Teaching (Year 3)	5	7

These results are in total agreement with results obtained by the Ventura (Fendrick, 1981) and Mt. Currie (Wyatt, 1977) programs. While no formal program evaluation of these latter two programs has been reported, the present results obtained through a sound research design clearly indicate that such types of programs are indeed effective in reducing the drop-out behavior of native Indians. Further, the present results reveal that programs such as the one used at Fort Resolution are also effective in attracting new students to come to school and to remain in school until the end of the school year.

From a psychological perspective, the present results provide support for cognitive evaluation theory (Deci & Ryan, 1980; in press). According to the theory, when feelings of competence and self-determination are enhanced, intrinsic motivation increases, producing an augmentation of task-related behaviors. Recent education research by Deci and his colleagues (Deci, Nezlek, & Sheinman, 1981; Deci, Schwartz, Sheinman, & Ryan, 1981) has shown that when educational programs provide opportunities for choice and responsibility, students' intrinsic motivation increases. Since the purpose of the Fort Resolution program was to provide the very opportunities found effective by Deci and his colleagues, it seems logical to interpret the increase in school-related behavior (increased class attendance) as due to an enhanced intrinsic motivation. Further, since very few if any extrinsic incentives motivated students to remain or to come to school under the traditional program (see the poor attendance in years 2 and 3), the fact that students remained in school (and that even some new students came to school) when the program was operative reveals that the program was effective in enhancing students' intrinsic motivation. Indeed if school had not been intrinsically motivating students would have dropped out as in the other two years when the program was not operative. All in all, cognitive evaluation theory is supported by the present findings and the theory provides a cogent analysis of the underlying dynamics of the increased class attendance of native Indians found in this study.

From a practical standpoint, the present findings are encouraging for teachers and educators involved in native education. It is shown that a student-oriented program, wherein students' needs for self-determination and competence are not only acknowledged but also nurtured, has a powerful effect on native students' attendance in school. While three types of special projects were used in the program (namely the Outdoor Activities, Job Experience, and Radio Resolution projects), it is felt that a program made up of other projects could also be successful. This is supported by results of the Ventura and Mt. Currie programs as well as other programs (see Foerster & Soldier, 1977). This is because the key to the success of the program does not reside in the projects themselves but rather in the fact that they 1) provide students with a sense of self-determination; 2) provide self-respect and a sense of competence to the student; and 3) allow for mastery and application of school-based knowledge in non-threatening real-life situations. Thus, other projects should also be successful for as long as these fundamental properties of the program are respected.

It is hoped that teachers and educators involved in native education will pay close attention to the positive results obtained with a rich yet inexpensive program. It is felt that such a program which blends traditional curriculum with various special projects has the potential to yield very favorable consequences for native education, eventually helping to close the gap of occupational inequality.

## NOTES

1. This paper is the reflection of an equal contribution from the authors. We would like to thank Ed. Deci and two anonymous reviewers for their constructive comments on an earlier version of this article: Requests for reprints should be addressed to Robert J. Vallerand, Département de Psychologie, Université du Québec à Montréal, Caisse Postale 8888, Succursale "A", Montréal, Québec, Canada, H3C 3P8.
2. Locating reports on native Indian educational curricula and programs is not an easy task. Indeed most reports have not been published (see also Wyatt, 1977 to this effect) and unpublished reports are not directly accessible. Further, even published reports are not always clear in their description of the programs and there is rarely an assessment of the program performed. Considering all of the above, we restricted our discussion of native Indian educational programs to the published reports of the Mt. Currie and Ventura programs.
3. This analysis is equivalent to carrying out the Fisher exact test for 2 X 2 Tables. The degree of significance was determined from tables p. 479f in Owen (1962). We express our sincere thanks to Ernest Dalrymple-Alford for suggesting this analysis.

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