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ABSTRACT

Youth with learning disabilities have high rates of unemployment and underemployment. A specific aspect of the poor social skills of adolescents with learning disabilities is their inability to solve unstructured problems on the job. The PROBE module was designed to help youth with learning disabilities to overcome this problem. PROBE is one of six modules in an ongoing research project examining ways of allowing youth with learning disabilities to explore careers, secure employment, and maintain employment. The PROBE module is based on the cognitive strategy instructional approach that has already proven successful in teaching adolescents with learning disabilities both reading comprehension and algebra problem-solving. The PROBE module includes a structured worksheet, job scenarios, and sample activity plans. PROBE emphasizes the importance of teacher modeling, emphasis on thinking aloud, and role playing. Preliminary results indicated that the PROBE module can be successful. Students and teachers are enthusiastic about it, and the indications are that the PROBE module can be used in individual and paired counseling with little adaptation. (ABL)

Pathways to Employment:

Solving Problems on the Job

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Abstract

The present paper reports on the development of a module designed to help youth with learning disabilities solve problems on the job. The PROBE module, as it is called, is based on the cognitive strategy instructional approach, that has already proven successful in teaching adolescents with learning disabilities both reading comprehension and algebra problem-solving. Preliminary results indicate that teachers and students feel the PROBE module is successful. Continued research with the module is thus encouraged. A brief description of the PROBE module is also included.

Pathways to Employment:

Solving Problems on the Job

Youth with learning disabilities have high rates of unemployment and underemployment (Kortering & Edgar, 1988; Spreen, 1988). These youth fail to take their place in the labour force and contribute to the Canadian economy despite their normal intelligence. In general, the failure of adolescents with learning disabilities to secure and maintain employment stems from two primary causes. First, these adolescents' learning problems can prevent them from acquiring knowledge in traditional classroom settings (Deshler & Lenz, 1990). Second, even when youth with learning disabilities have acquired the requisite skills for a job, they may lack social skills, planfulness, and ability to accept responsibility (e.g., Torgeson & Wong, 1986). Lacking these skills may result in young people with learning disabilities losing jobs that they have obtained.

The present discussion focuses on a specific aspect of the poor social skills of adolescents with learning disabilities, their inability to solve unstructured problems on the job.

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The theoretical framework for this examination comes primarily from three areas. First, there is a large body of research on the characteristics of people with learning disabilities. Second, there is a growing literature base that examines the career development of individuals with disabilities. Finally, the instruction that we are designing is founded on the cognitive strategy instructional approach.

Compared to their normally achieving peers, adolescents with learning disabilities show deficits in social problem-solving. In a recent comparison of mainstreamed adolescents with learning disabilities to their classmates without learning disabilities, Schneider and Yoshida (1988) found that those students with learning disabilities scored significantly lower on four of the five problem-solving abilities tested: means-end problem-solving, recognition of problem situations, optional thinking, and causal thinking. Furthermore, youth with learning disabilities seem to recognize their own deficiency in social skills and are more receptive than their peers without learning disabilities to accept instruction in how to keep a job (Dowdy, Carter, & Smith, 1990).

Farley and Akridge (1987) developed training that allowed rehabilitation clients to learn a strategy for dealing with various job situations. Clients were given instruction in basic behaviour management techniques and allowed to practise these techniques in simulated career situations. Instructed clients were superior to controls on both declarative and procedural

knowledge and were able to generalize their training to real-life settings. However, the relevance of this study to the present work is lessened by the older age of the subjects, mixed disability groups, and the rehabilitation setting. Montague (1988) and her associates taught 10 job-related social skills to special education students over 30 sessions. Montague concluded that the anecdotal evidence suggested that students who received the instruction were able to generalize classroom instruction to the work setting. Once again, the student sample was not restricted to youth with learning disabilities nor was the concentration specifically on problem-solving. Also germane is the recent work by Foss, Auty, and Irvin (1989), investigating the effect of teaching problem-solving skills to mildly mentally handicapped adolescents. The researchers found that teaching problem-solving skills to special education students resulted in increased interpersonal competence for employment as measured by a standardized assessment measure.

Cognitive strategy instruction is currently a major focus of attention in learning disabilities research. Pressley, Symons, Snyder, and Cariglia-Bull (1989) in their review of the field indicate the great "potential" that has been shown by cognitive strategy instruction. The word "potential" is a weaker word than many people would choose in light of successes many investigators have had in using cognitive strategy instruction in various subjects. Palincsar and Brown (1984) have taught reading comprehension to youth with learning disabilities, utilizing a

cognitive strategy approach. Similarly, Hutchinson (1989) has undertaken cognitive strategy instruction in her teaching of algebra word problems to adolescents with learning disabilities. These researchers have shown the strength of cognitive strategy instruction.

In conclusion, research has shown that youth with learning disabilities both need and want instruction that will enable them to solve problems at work. Although other researchers have taught youth with disabilities social skills, including problem-solving, none has concentrated exclusively on youth with learning disabilities. As well, no researcher has applied cognitive strategy instruction, that has proven successful in other areas, to problem-solving on the job.

Description of the Instruction

This paper details the development of an instructional module we are calling PROBE. PROBE is one of six modules in an ongoing research project examining ways of allowing youth with learning disabilities to explore careers, secure employment, and maintain employment. PROBE is specifically concerned with problem-solving on the job. The module is patterned after work by Hutchinson (1989) on teaching algebra word problems to students with learning disabilities. Similarities between this module and the previous instruction include use of a structured worksheet, the importance of teacher modelling, and an emphasis on thinking aloud. The main difference in PROBE is the role-playing component wherein students role play potential job

problem situations.

The main components of this module are the problem representation/solution worksheets and the various job scenarios. The worksheet serves as a guide for the student in recognizing a problem and in deciding upon a solution. The worksheet has two main sections: (a) representing or understanding the problem (on the top half of the worksheet) and (b) solving or resolving the problem (on the bottom half of the worksheet).

After noting the problem number, the student is asked to state clearly the goal for the problem. The next step asks for the student to determine the kind of problem being dealt with: (i) individual, (ii) relationship, or (iii) technical. Individual refers to problems that arise primarily through skill and knowledge deficits of the individual. Relationship problems are problems that arise through interaction with other people. Technical problems result from deficiencies of inanimate objects. The final step in the representation of the problem is the identification of people who could change the situation. In almost all cases, it should be noted, the worker is one person who could resolve the problem.

The second part of the worksheet involves solution of the problem. Four spaces are left for possible solutions and students are encouraged to give at least that number of viable solutions in order to have alternatives in the event that the initial strategy chosen proves unsuccessful. Lastly, the student is asked to rank the solutions as to perceived efficacy.

The use of this worksheet is very important in enabling students to organize their thinking and develop strategies to deal with job-related problems.

The second major component is the job scenario. A number of job scenarios are listed for the PROBE module and are included on index cards that supplement this module. The following is a sample job scenario:

> Your close friend is getting married on Saturday. You usually work on Saturdays. On Friday, you ask your boss for the next day off. The boss says no because Saturdays are so busy.

These scenarios can be supplemented by teacher-prepared scenarios focusing on specific characteristics of the students in the target class. Both teachers and students are encouraged to prepare scenarios. The present version of the PROBE module contains some scenarios that were developed by students in the first study with this module.

Sample activity plans are included with the PROBE module. These plans are designed to offer repeated practice of the skills being taught, while giving variety to the activities. The plans serve as a guide to teachers and counsellors and should be modified to suit the needs of the individuals in the class. Seven sample activity plans are included.

While seven activity plans are included, this does not mean that the intervention need last seven sessions. If necessary to ensure student success, certain plans can be expanded to two or

more sessions. In general, we estimate that completion of this module on problem-solving on the job will continue for ten sessions of approximately 40-60 minutes each.

A brief description of each of the seven activities is given in Table 1. As well, suggested number of class periods for each activity is indicated.

Insert Table 1 about here

Evaluation of the PROBE module involves use of the structured worksheet. Each student is presented with a sample job scenario and asked to fill out the worksheet. The process is then repeated with a second job scenario. Structured worksheets can then be rated. When students are asked to fill out the worksheets before the beginning of the instruction and after completion of the module, a measure of student growth can be obtained.

Description of Development

The first stage in development of PROBE was extensive reading in the literature and examination of instruction that has been used with other people with disabilities in social skills training, particularly, problem-solving on the job.

From this initial search of the literature, an initial draft of the PROBE module was undertaken. Upon consultation with others in the field, this initial draft was revised prior to its use in the classroom.

At this point, a feasibility study was conducted. The feasibility study was used to indicate areas of the module that needed to be revised in order for it to be more effective in use with youth with learning disabilities.

In the feasibility study, 14 students from a grade 11 learning disabilities class in a small Ontario town were pretested using three job scenarios. For the first two scenarios, students worked individually on their own copy of the structured worksheet to represent and solve a problem that might arise at work. For the third scenario, students thought aloud individually with one of the investigators. The think-alouds were audiotaped and later transcribed for analysis.

From this pool of students, seven were selected to take part in the instruction. Instruction was delivered by a qualified special education teacher at the school using the PROBE module. Total time for the instruction was nine hours, spread over nine weekly, one-hour sessions. Sessions were audiotaped for later analysis. After the instruction, all 14 students were retested using the same conditions but with different job scenarios. The analyses of session audiotapes and student results suggested possible areas of improvement for the PROBE module.

A pilot study with grade 9 basic level students will be conducted in the near future. Future plans include use of the PROBE module with intact classes and instruction of all six modules in sequence over the course of one school semester.

While our initial focus was on youth with learning

disabilities, we have realized that the instruction of problem-solving skills for employment is important for all youth and, especially, for at-risk youth. It is our hope, then, that what was originally designed for a specific population might have applications beyond what was first envisioned.

Some Preliminary Results

Analysis of session tapes and field notes from the feasibility study give some early indications of the success of the PROBE module in terms of student and teacher response to the module.

Student Reaction

Initially, students were wary of the module. As the students were being withdrawn from their regular English class for one period a week, there was some concern from the students that they would be missing something essential that was occurring in the class. This feeling changed as the sessions progressed. Students became more interested in the process that was enabling them to solve problems. By the later sessions, students in the experimental group were responding positively to the PROBE module. The following is a typical exchange from the post-test think-aloud between a student and one of the authors. In the third session, the first author had noted in his field notes that this student was "giving very little in the way of participation. [The student] seems to think that the program is too basic." The student responses are in upper case letters, while the interviewer is in lower case.

Is there anything we could do differently to make it better?

NOT REALLY. NO.

Oh. It was okay the way it was.

YEAH. IT WAS OKAY THE WAY IT WAS. ...

Did you enjoy what you were doing? Testing it and things like that?

YEAH. YEAH. IT WAS FUN.

It is evident that the attitude of this student toward the PROBE module changed as instruction progressed.

Observer Reaction

As the PROBE module was an innovative program in the school, other school personnel attended certain sessions to see how the module worked. These people included the principal of the school, the head of the English department, and the co-ordinator of the basic level program. The principal found that the students were engaged throughout. Furthermore, he thought that the group processes being learned, as well as the problem-solving techniques, would be valuable in the work place. The head of the English department was initially sceptical of the PROBE module. After observing a session, he was "most impressed by the method and [could] see this problem-solving technique being used in other areas than career planning" (Field Notes). The co-ordinator of the basic level program was also pleased by what she observed of the PROBE module. In fact, she was so happy with what she saw that she volunteered to teach the module with the grade 9 basic class in the following semester.

Teacher Reaction

The teacher for the feasibility study was well-qualified in both Guidance and Special Education. To gauge her reactions to the program, the first author conducted a telephone interview with her in preparation for the writing of this paper. This teacher's comments indicate her satisfaction with the PROBE module.

> Overall, I felt the students really benefited from the structured problem-solving routine. I also felt that, as demonstrated by the comments, they enjoyed the group problem-solving process. In my mind, this area of group interaction and group participation is of vital importance with this type of student. Historically, these students have not had the opportunity to engage in problem-solving in a group setting.

A further indication of this teacher's approval of the module is her continued participation in the project by agreeing to teach another module in the upcoming pilot study.

Conclusion

In conclusion, this preliminary research showed that the PROBE module can be successful in teaching problem-solving skills to youth with learning disabilities. Students and teachers are all enthusiastic about the module. In addition, the authors are confident that the PROBE module can be used in individual and paired counselling with little adaptation. Our study also yielded insights into factors that improved instruction. The

continued development and eventual publication of the PROBE module has important educational implications as counsellors and teachers prepare students with learning disabilities to maintain employment.

Note

Those counsellors and teachers wishing to learn more about the "Pathways" project of which the PROBE module is a part and/or wanting to take part in future studies involving the "Pathways" project are encouraged to contact the first or second author at Queen's Research and Development Career Counselling Group, Faculty of Education, Queen's University, Kingston, Ontario, K7L 3N6.

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Table 1

A Description of the Activities in the PROBE Module

Activity One	discussion of importance of problem-solving on the job, introduction of structured worksheet, teacher modelling use of structured worksheet, class participation in use of structured worksheet (1 session)
Activity Two	teacher modelling, students work in pairs thinking aloud about the representation and solution of various job scenarios (3 sessions)
Activity Three	teacher modelling, doubling activity--students work problem individually, then with partner, next with a group of four, then with a group of eight, and so on until whole class decides on representation and solution of problem (1 session)
Activity Four	teacher modelling, pairs thinking aloud, individual work on different job scenarios--each student works individually on different problems, exchanging problems with others upon completion (1 session)
Activity Five	teacher modelling, group work using different solution methods for same problem--one group draws a picture of problem representation and solution, another group does a play about the problem, while another group tape records the representation and solution of the problem (1 session)
Activity Six	teacher modelling, practised role-play--students plan role-play of a problem representation and solution before enacting the role-play for others (2 sessions)
Activity Seven	teacher modelling, unrehearsed role-play--as in activity six, except students do not practise role-play before presentation to class (1 session)