Teaching Employability Skills Using the WonderTech Work Skills

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Abstract

This article describes the WonderTech Work Skills Simulation, a recently developed experiential approach to teaching employability skills to adolescents and adults. The paper describes the design process of the simulation and provides a brief synopsis of its structure, content and processes.

Résumé

Cet article décrit le "WonderTech Work Skills Simulation," une approche expérientielle développée récemment pour l'enseignement d'aptitudes d'employabilité pour les adolescents et les adultes. Cette recherche décrit le modèle du processus de simulation et procure un bref synopsis de sa structure, de son contenu et de ses processus.

INTRODUCTION

Career educators and counsellors have suggested that factual information about careers and employability skills, presented in lecture and textual formats, may be insufficient preparation for persons making the transition to an increasingly complex workplace (e.g. Thatcher, 1990; West, 1991). Experiential learning in career education has been suggested as a supplementary instructional method which could assist students to make the transition from fact-based learning about employment to skilled work performance. Such experiential learning methods provide an intermediate step between classroom instruction and work placement and substitute for work placement programs where these are not available (Cairns, Woodward & Hashizume, 1992). Simulations, in particular, offer opportunities for ". . . training without risk" (Pray, 1987), and may be particularly effective with less well motivated students, or with those who prefer to learn by doing rather than by listening. Simulation research has consistently shown that students prefer gaming to lecture- or text-based instruction. "From the standpoint of student preference, the simulation is an ideal teaching method; it integrates knowledge, concepts and people as no other method can" (Klein & Fleck, 1990, p. 150).

Few experiential work training programs or work simulations are available to date, however, since their development is resource intensive and the design process involved is complex and time consuming. Those that have been developed may be under-utilized since teachers and

counsellors who have not been trained to use experiential methods may be reluctant to attempt them. As Petranek (1994) points out, "It takes a great deal of courage to initiate a new teaching style such as a simulation" (p. 514). The initial cost of purchasing simulation packages may also affect their use, particularly in secondary school settings where budgets are currently very limited. However, in a recent cost-benefit analysis, West (1991) found that, while simulation packages are initially more expensive than lecture or discussion materials, they are ". . . less expensive than . . . cognitive apprenticeship because every student must be placed within a job or professional context while a simulation can be used over and over again with numerous classes" (p. 13). Despite the barriers to their development and use, simulations remain an attractive, alternative instructional method, provided that supportive in-service or mentoring processes are put in place to facilitate their use.

This paper describes the development and use of one such experiential curriculum, the WonderTech Work Skills Simulation (WSS) (Cairns & Woodward, 1994), which has recently been completed with the support of the Canadian Guidance and Counselling Foundation (CGCF). The WSS was developed over a three-year period, from 1991 through 1994, as one component of the CAMCRY initiative—a federal program designed to develop and disseminate innovative resources for use in career and work transition education and counselling for youth. Each step in the development of the WSS is described briefly below, followed by a description of the final form of the product and its current use in Canada.

DEVELOPING THE SIMULATION

The process of developing an instructional simulation is complex and time intensive. A number of steps are required, some of which are unique to simulations, while others are common to the development of all forms of effective instructional material. Various authors have presented lists of the steps required in developing a simulation (for a summary and comparison of these models, see West, 1991). Most of these lists include the following common elements: establishing objectives; developing a model of the process to be simulated; selecting those characteristics of the model which will be represented; specifying an overall sequence of events and preparing a matrix of event interactions; preparing an initial version, including all print materials and other components required for use; testing and revising the prototype through repeated field testing with the intended end users; preparing supporting documentation, such as facilitator guides; and evaluating learning outcomes. The development of the WSS followed this sequence closely, as described below.

Setting Objectives

The specific employment maintenance skills (objectives) around which the WSS was developed were derived specifically for the project from three sources: an extensive review of the relevant research literature (see Cairns, Woodward, Magnusson & Hashizume, 1990); a series of interviews with successful and unsuccessful employees between the ages of 16 and 25; and interviews with career counsellors and employers (see Cairns et al., 1992). The literature review indicated that, although a lack of specific, technical job skills is frequently cited as a barrier to employment, there is little evidence to support this contention. In fact, ". . .most employers noted that the necessary technical skills for entry level positions could be acquired in less than four weeks . . ." (Cairns et al., 1990, p. 11). Rather, the presence of a set of basic personal and attitudinal skills was paramount. A list of these skills was developed from the literature review, and further clarified and validated by an analysis of the employer, employee and counsellor interview transcripts.

This process led to the development of a set of five skill categories, each of which contained several sub-categories of behaviour (see Table 1). The accuracy of this skill set in reflecting the combined knowledge of researchers, practitioners, employers and youth about successful work acquisition and maintenance was further reinforced by the subsequent publication of a very similar set of skills derived from a separate, extensive study by the Conference Board of Canada (1993).

Modelling the Workplace

A model of an interactive work simulation was developed, incorporating the five skill sets into the context of a hypothetical company—WonderTech, Inc., which was described as a small manufacturing company producing plastic and/or paper toys and industrial devices. The company products were determined through focus group testing with small groups of adolescents, to ensure that the selected materials and tasks held intrinsic interest and to determine the length of time "employees" would probably require to complete a product unit.

A detailed model of the company was developed to correspond as closely as was feasible to common corporate structures in the manufacturing sector. A range of administrative, clerical, accounting, product design and technical production roles was developed, and tasks were assigned in such a way as to require the use of the full range of skills in each job description. Attention was also paid to ensuring that the various work roles allowed for the expression of a variety of participant skills and interests (e.g. math skills, technical skills, or artistic abilities.

An interactional matrix of the company was prepared based on this structure, and an initial prototype was developed for field testing. The

TABLE 1

Employability Skills Modelled in the Work Skills Simulation

Skill Category	*Specific Skills*
Literacy/ Numeracy	Reads and comprehends materials
	Writes, spells and uses grammar accurately
	Speaks clearly
	Listens effectively
	Makes mathematical calculations correctly
Self-Management	Manages time effectively
	Manages own emotions
	Uses workplace materials effectively, safely
	Shows respect for facilities and personnel
	Takes responsibility, accepts criticism
	Assesses own work accurately
	Maintains supportive work relationships
	Presents appropriate workplace appearance
Problem Solving	Notices and identifies problems as they occur
	Analyses problems effectively/accurately
	Takes responsibility for developing solutions
	Seeks information appropriately
	Discusses solutions with others effectively
	Cooperates in implementing solutions
	Evaluates effectiveness of solutions appropriately
Cooperative Action (Teamwork)	Participates effectively in team meetings
	Collaborates well with other team members
	Understands others' perspective on a problem
	Understands effects of own performance on others and on overall profitability of the company
	Participates in interpersonal problem solving
	Performs assigned responsibilities reliably
Leadership/Initiative	Suggests ways to improve productivity and/or product quality
	Identifies sources of potential problems and takes preventive action
	Identifies own behaviour change requirements independently
	Acts as a role model and encourages others
	Enhances team cohesion and work role identification to develop positive workplace

prototype included the specified roles, detailed job descriptions, a set of forms corresponding to those used in "real world" business, products to be further tested for feasibility, participant evaluation methods and debriefing procedures.

The Field Testing and Prototype Revision Process

The field test venues for the development of the WSS were selected to represent a range of possible end users, including a variety of public secondary school and agency settings. Ten field tests were conducted over a period of two years, with a revision process intervening between each one. Six of the field tests wre conducted in career and life management classes in high schools, including one class of gifted adolescents, four main-stream classes, and one class of returning students who had previously dropped out of school. A seventh test was conducted in a school setting where the students were all pregnant and/or parenting female adolescents. The eighth and ninth tests were completed in agency programs for unemployed adults aged 18 to 30 who were upgrading their employment skills for various reasons. The final test was conducted in a Caribbean country as part of its government's initiative to improve population work attitudes and practices.

The school-based tests were run in a format which fit the timetabling of the particular school, most often as a series of eight one-hour classes offered over a two- to three-week period. In contrast, the agency field tests and the Caribbean test used a workshop format, offering the program as an intensive, two-day immersion experience.

After each of these field tests, modifications were made to the simulation, incorporating student and instructor feedback obtained from an evaluation questionnaire, the developers' field note observations, and videotapes of the process. Numerous changes to the simulation materials and procedures were made in this process. A detailed example of how design problems were identified and addressed through the field tests can be found in Cairns, Woodward & Hashizume (1993).

A demonstration videotape was also made during the field tests. The tape shows the simulation in action and illustrates how each of the skill sets it is intended to develop is incorporated in the design. This videotape is available from the publisher of the kit and can be used to orient facilitators and learners to the process they can expect to experience in the WSS.

Supporting Documentation

Once a "final" version of the WSS had been created, incorporating the necessary changes, the kit was prepared for publication (Cairns & Woodward, 1994). The WSS kit includes: a Facilitator's Manual; a Forms and Memos for Duplication book (transparency masters, bulletin board ma-

terials, participant workbook, and department-specific forms and memo masters); a set of materials specific to each of the four Departments which make up the company (Administration, Sales and Marketing, Production, and Materials), including employee in-baskets; and a set of materials for making the paper product. The pieces necessary for manufacturing the plastic product range are also available, as a supplement to the kit, through the publisher, Trifolium Books.

Evaluating Learning Outcomes

Users of the WSS have indicated that it is well structured to meet all of the central requirements for effective simulations, including: content validity requirements, such as providing an accurate model of the workplace; process requirements, such as identified opportunities for specific skill acquisition and clearly defined role structures; teaching requirements, such as flexibility of use, appropriateness to curricular needs and provision for debriefing opportunities; and evaluation requirements, such as assessment of entering skills, provisions for grading procedures, and debriefing opportunities.

Evaluations from facilitators and students using the simulation indicate that student enjoyment of and engagement in the learning process is high, and that the credibility or verisimilitude of the simulation is excellent. The participant performance evaluation components provided within the simulation structure itself (e.g. student performance appraisals, oral debriefing processes and journals) also indicate significant, positive learning outcomes.

In-service workshops are being held across Canada to train facilitators to use the WSS, and to establish groups of local users. Contact names and numbers for local trainers and for the developers can be obtained through the publisher.

USING THE SIMULATION

Table 2 indicates the usual sequence of events that occur in running the simulation. These steps take the participants through an initial orientation to the simulation, application for employment, participation in job interviews, work role enactment and debriefing stages. The simulation can be used in a continuous format over several days of instruction or, alternatively, it can be used as a series of shorter classes with intervening lecture/text presentations, field trips, or other learning opportunities. The total number of instructional hours required will vary widely depending on which of these two formats is used. Some facilitators have chosen to use the WSS as the framework for an entire course or program, using it at intervals on several days a week across several months. Others have used portions of it as a brief "change of pace" to increase student motivation and provide a new format for learning. To date, the instruc-

tional uses of the WSS have ranged from a low of six to eight hours of instruction (usually using only selected WSS components) to a maximum of over one hundred hours. Class sizes also vary, from a minimum of about twelve students to a maximum of about thirty.

TABLE 2

Sequence of Activities in the Work Skills Simulation

Sequence	*Activity*
Instructor and supervisor preparation	The instructor reviews the WSS kit materials, uses the demonstration videotape to orient class to the activity, and meets with potential peer supervisors to prepare them for their management roles.
Applications for work	All prospective employees consult the job board for information about the range of positions available. They then apply for specific positions using standard application forms and optional resumes.
Interviews	Each applicant participates as an observer and as an applicant in a series of interviews. The interviews are conducted by students taking management roles or by volunteer assistants from the school or agency staff, or from community sources.
Orientation	Employees meet in their departmental groups for briefing by a peer-supervisor. Details of job descriptions are reviewed, materials are distributed and employees complete required personnel paperwork. Postion-specific in-baskets are distributed and discussed.
Startup	Employees begin work at a reduced level of productivity expectation while any logistical problems are sorted out and participants develop familiarity with their work roles.
Production	A series of classes during which the company is working at full capacity to: a. produce the products in numbers required to keep their company profitable, and b. to manage the internal dynamics of the company (payroll, accounting, personnel files, etc.).
Debriefing	Debriefing activities occur throughout the simulation in various forms (e.g. department meetings, supervisors' conferences). Depending on the format chosen by the instructor, they may also include full-class discussions at strategic points.

When the simulation is in use, the classroom is transformed into a busy, "as if" workplace where learners are expected to make written application for work, attend and assess participant-conducted interviews, complete company employee records appropriately, effectively perform their assigned work tasks using their position in-baskets as guides, and engage in peer and self-study of outcomes.

Simulations are best understood as involving three levels of learning: participating, oral debriefing, and journaling (Petranek, Corey & Black, 1992). Each of these activities, as they are reflected in the WSS, is described below.

Participation Phase

The single most important aspect of the participation phase is the facilitator's provision of a systematic, organized experience. The materials in the Facilitator's Manual for the WSS set out a detailed time line for preparing to use the simulation, so that the first-time user will have a comprehensive structure to rely on. Advance preparation using these materials is essential and in-service training is a particularly useful method of getting comfortable with the simulation.

However, the facilitator, especially if he or she has not received prior training in experiential teaching methods, should also keep in mind one of Petranek's principles of simulation use (Petranek, 1994), which states that, "After reading all of the instructions for a simulation, the playing of the simulation will not be totally understood and it will take a leap of faith to start" (p. 515). The effectiveness of the WSS depends, in part, on the facilitator's willingness to "go with the flow," allow mistakes to happen and allow the participants to find innovative ways around their errors or the program's shortcomings. A useful guide to facilitator conduct during the simulation is the list of ten commandments for game facilitators found in Heitzmann (1983):

1. Thou shalt not correct the minor mistakes of players.
2. Thou shalt not offer a better strategy that the player does not perceive.
3. Thou shalt not review in minute detail the purposes, rules and materials of the simulation game.
4. Thou shalt not correct any elaboration or alteration of the rules of the game.
5. Thou shalt not keep perfect order. Gaming is fun and noisy.
6. Thou shalt not stymie any points that seem to be irrelevant to the discussion. They often are relevant, or at worst, only brief digressions.

7. Thou shalt not constrain the physical movements the game may require.
8. Thou shalt not answer participants' questions about the game with "that's not in the rules!" It is impossible for the designers to account for all events and questions that might arise in the course of playing.
9. Thou shalt admit thy lack of knowledge about a point of the game's operation.
10. Thou shalt consider a simulation game as serious a form of education as less enjoyable forms. (p. 10-11)

Keeping these guidelines in mind can allow the facilitator to relax into using the new method.

In spite of all their best efforts, however, designers will inevitably ". . . envision their simulation as simple and straightforward, but facilitators will see it as difficult and complex" (Petranek, 1994, p. 521). With this fact in mind, an additional source of assistance, developed by one of the first career educators to use the WSS, is included in the kit. This publication, Key Elements for WonderTech Implementation: A Guide for First-time Facilitators (Boychuk, 1994), includes additional structured helps and hints for easing the complexity of the simulation and guiding facilitators through the learning process.

With the first-time user's initial anxiety in mind, the Facilitator's Manual and other print support materials in the WSS kit also explain the facilitator's role in detail and provide all of the information necessary to run the simulation effectively. If the facilitator uses these aids to remain organized and "one step ahead" of the class, he or she can remain relatively relaxed and enjoy a novel learning experience.

Debriefing

Debriefing is a critically important process in any form of experiential learning, since "People don't learn from experience (including simulated experience). They learn by reflecting on their experience" (Thiagarajan, 1994, p. 529). Ideally, debriefing should include sequential phases of emotional ventilation, role dropping, insight sharing, hypothesis generating, real-world transfer and generalization (Thiagarajan, 1993). Debriefing involves students in a reflective process, encouraging them to ask themselves why they made the decisions they made, why they obtained the results they obtained, and what the experience has to teach them about their performance in the workplace. The reflective process, ". . . encourages students to see patterns of behaviour and proposes associations from the simulation to the real world" (Petranek et al., 1992, p. 177), assisting them to see their own behaviour as employees from the

perspective of the employer and through the eyes of their fellow employees in order to stimulate constructive self-confrontation.

Debriefing opportunities occur frequently in the WSS, since its structure contains natural "breaks in the action." Facilitators can use these opportunities, as well as those that occur within sessions, to enhance participant learning. An excellent, detailed guide for conducting debriefing, specifically for simulations, can also be found in Steinwacks (1992).

Journal Writing

The final learning element used in the WSS to enhance student learning is the process of journaling. Journal writing is used to supplement oral debriefing by ". . . validat[ing] self-expression and personal response, encourag[ing] understanding, imaging, . . . questioning, and . . . shaping ideas" (Petranek et al., 1992, p. 179). Journals can be particularly effective for students who have important issues and/or discovery learning that they wish to describe and discuss with the facilitator but hesitate to raise as part of a group discussion. Sample journal forms and questions are included in the WSS kit for use after each section of the simulation is completed. Should the facilitator prefer, more expansive journals can also be kept, including student responses to additional assignments on related special issues, such as understanding payroll deductions, or planning financial management using the WSS paycheques. Students' journals can also incorporate supporting material collected from newspapers, magazines and government publications to form an employment issues scrapbook.

CONCLUSION

The usefulness of the WSS as an element in any particular work transition curriculum will depend on four critical factors: the unique characteristics of the learning environment (space availability, time allowed); the goodness of fit between the larger curriculum learning objectives and the simulation objectives; the particular learners' needs and characteristics; and the facilitator's knowledge of and willingness to use experiential methods. The WSS has been designed to have maximum flexibility in response to these factors. It has been used effectively in a variety of educational settings across Canada and has been recommended by some provincial departments of education for inclusion in their career education curricula.

West (1991) suggests that, "No single instructional method, not even an instructional simulation, should be treated in isolation from other methods, nor should any be revered as necessarily 'innovative' while others are relegated to 'traditional' . . ." (p. 6). Rather, simulations such as the WSS are one component of instruction, which can be used for

many purposes and in many different ways. Simulations are best understood as providing, ". . . a welcome and justifiable change of style, approach or method" (West, 1991, p. 14). The effectiveness of the WSS in this regard is attested to by its numerous users in varied school and agency settings across Canada. Properly used, it is a powerful, experiential method for developing the skills and attitudes that students require to maintain successful employment.

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