NC STATE UNIVERSITY The Forum for Family and Consumer Issues (FFCI)

The Forum for Family and Consumer Issues (FFCI)
Carolyn L. Bird, Ph.D., AFC - Editor In Chief
TheForumJournal.org | ISSN 1540-5273 | info@theforumjournal.org

Assessing Decision-making Skills of Youth

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Abstract

The 4-H youth program helps youth to develop life skills through participation in a variety of programs and activities. Many programs and projects are designed to teach decision-making skills. However, no scientifically tested instrument is available to assist local youth and family educators in assessing youth's decision-making skills. Knowledge of decision-making deficiencies among youth participants can provide information that will assist curriculum developers and program planners in modifying or increasing the decision-making skills practiced by youth in programs.

The purpose of this study was to develop and validate an assessment tool to measure decision-making skills of youth ages 13-19. The importance of decision-making skills in adolescence, in combination with the fact that these skills can be taught and practiced, provides strong rationale for the development of a decision-making skills assessment instrument. Research in non-formal educational environments, such as 4-H, is needed to determine whether these environments and the curricula designed to teach decision-making skills are effective and successful.

Introduction

In this rapidly changing world, youth need to be equipped with skills to guide them as they make decisions. Young people make lifestyle and career choices that impact their futures and the future of society. Life skills of personal finance and consumerism are grounded in the ability to make sound decisions (Jump$tart Coalition 2002). Youth who make decisions to engage in risky behavior can negatively affect themselves and society in general. Making sound decisions not only assists youth in resisting pressure to engage in risky behaviors, but also fosters social skills and social awareness, and encourages them to think about consequences, decide on goals, and understand their own and others' feelings (Elias and Tobias 1990). Jacobs (1998) found that 7th

and 8th graders who made snap decisions were more likely to be involved in risky behaviors than those youth who carefully thought about options and evaluated potential consequences.

Decision-making is defined as an intellectual process leading to a response to circumstances through selection among alternatives (Nelson 1984). The skills needed to make sound decisions can be taught. Baron and Brown (1991) note that instructing adolescents in decision-making can prevent the development of poor reasoning habits and, when combined with practice, can instill better habits. Dybdal and Sondag (2000) advocate the use of a teaching technique that uses pre-written scenarios or critical incidents as teaching tools, emphasizing the need for decision-making activities based in content area. Elias and Tobias (1990) also underscore the importance of teaching decision-making skills in daily academic and social contexts that relate to "real life." Gregan-Paxton (1995) studied pre-decisional skills of preschool and grade school children and found that training young children about decision-making is relevant and that general rules can be taught. McMorris (1999) examined the effects of cognitive development on the acquisition of decision-making skills in sports. He notes that information on the optimal time for teaching and the critical period for learning decision-making skills is lacking, but that practice does increase performance in decision-making.

From infancy to early adolescence, there is a period of exuberant synapse growth followed by a period of synaptic "pruning" (Board on Children, Youth and Families, 2002). With puberty, there is a second "pruning" of cells. The cells and connections that are used survive while those that are not used perish (Board on Children, Youth and Families, 2002). Given this new brain research, it may be that adolescents who practice decision-making skills may increase the likelihood that the brain cells related to that process remain and are not pruned away. Mann, Harmoni, and Power (1989) conclude that by age 15, many adolescents have achieved a reasonable degree of decision-making competence. However, adolescents do not consistently apply sound decision-making skills to all decisions, especially when dealing with a stressful or conflict-laden situation.

Beginning instruction in decision-making in early adolescence (ages 12-14) seems especially important. Mann, Harmoni and Power (1989) found that younger adolescents are less able to identify options, identify a range of risks and benefits, understand or predict the risks and benefits, and accurately assess the information received from sources that may have vested interests in the decision. Jacobs and Ganzel (1993) note that even when youth are equipped with information-processing decision-making skills, motivation to make decisions differs from adults, as the social, emotional, and developmental differences affect adolescents' decision-making ability. Emotions are also a factor in adolescent decision-making. Adolescents who often experience strong emotions that can affect decision-making can be taught how to recognize the effects of their emotions. Thus, adolescents who understand the decision-making process and think through a decision may rely less on emotion (Fischoff, Crowell, and Kipke 1999).

Purpose of the study

The importance of decision-making skills, in combination with the fact that these skills can be taught and practiced, provides strong rationale for the development of a decision-making skills assessment instrument. The use of a scientifically based, decision-making skills assessment instrument would be a valuable tool for program evaluation of youth programs designed to increase youth's decision-making skills. For example, the instrument, if used as a pretest, could guide the development of decision-making activities that provide opportunities for youth to learn and practice decision-making skills. Most of the research conducted on the development and practice of decision-making skills was conducted in formal classroom settings. Research in non-formal educational environments, such as 4-H, is needed to determine whether non-formal youth programs and curricula designed to teach decision-making skills are effective and successful. The purpose of this study was to develop and validate an assessment tool to measure decision-making skills of youth ages 12-19. This paper also describes research efforts currently underway to measure decision-making skills learned in 4-H curricula.

The 4-H youth program fosters life skills through participation in a variety of programs and activities based on non-formal education. Many projects are designed to teach decision-making skills. However, no instrument is available to assist local youth and family educators in the assessment of such projects. Knowledge of decision-making deficiencies among youth participants can provide information that will assist curriculum developers and program planners in modifying or increasing the decision-making skills practiced by youth in programs.

Assessment instrument development

Our first step in developing an assessment instrument was to conduct a review of the literature focusing on the skills needed to make sound decisions. There are numerous decision-making models to describe the process of decision-making and the skills needed for good decision-making.

A comprehensive literature review was completed about decision-making. Table 1 outlines in matrix format the sub-skills garnered from the empirical research on decision-making. Those skills identified by at least 50 percent of the research articles examined were considered the skill set used to measure decision-making for the assessment instrument.

Table 1. Matrix of skills identified in published research as components of decision-making

Factors	Sub-skills	Published Research
Define Problem	**Systematic goal formation**	• Coscarelli (1983)

		• Dybdal & Sondag (2000) • Elias & Tobias (1990) • Ochoa-Becker (1999) • Nelson (1984)
	Precise description of problem	• Elias & Tobias (1990) • Hartoonian & Laughlin (1986) • Ochoa-Becker (1999)
	Reaction to situations or incidents	• Dybdal & Sondag (2000)
	Analytical thinking and interpretation of the situation	• Coscarelli (1983) Dybdal & Sondag (2000) • Hartoonian & Laughlin (1986)
	Ability to ask probing questions about prevailing situation	• Hartoonian & Laughlin (1986) • Ochoa-Becker (1999)
	Creative problem-solving helps to define the problem	• Mann, Harmoni & Power (1989)
	Willingness to make a choice and comprehension that decision-making is a cognitive process	• Mann, Harmoni & Power (1989)
Generate Alternatives	**Ability to question possible choices**	• Ochoa-Becker (1999) • Nelson (1984)
	Searches for new information about choice	• Janis & Mann (1977)

	Analysis of different choices/ defining sources of alternatives/assess credibility of information	• Coscarelli (1983) • Dybdal & Sondag (2000) • Elias & Tobias (1990) • Hartoonian & Laughlin (1986) • Mann, Harmoni & Power (1989) • Ross (1981) • Schlitcher (1981) • Nelson (1984)
	Describe facts and note accuracy of information about the alternatives	• Dybdal & Sondag (2000)
	Creative combination of choice alternatives	• Mann, Harmoni & Power (1989)
Check Risks and Consequences	**Describe advantages and disadvantages of decision/ Consequentiality**	• Dybdal & Sondag (2000) • Elias & Tobias (1990) • Hartoonian & Laughlin (1986) • Janis & Mann (1977) • Mann, Harmoni & Power (1989) • Nelson (1984)
	Compromise/ability to modify unobtainable ideal for less favorable but viable option	• Mann, Harmoni & Power (1989)
	Check range of objectives and values implicated by choice	• Janis & Mann (1977)
	Develop criteria for discussing possible solutions	• Hartoonian & Laughlin (1986)
Select Alternative	**Make a choice from among listed alternatives**	• Dybdal & Sondag (2000)

		• Elias & Tobias (1990) • Hartoonian & Laughlin (1986) • Schlitcher (1981) • Nelson (1984)
	Plan for implementation of decision	• Janis & Mann (1977)
	Commitment to selected alternative	• Coscarelli (1983) • Mann, Harmoni & Power (1989)
Evaluation	**Observe and interpret outcomes**	• Hartoonian & Laughlin (1986) • Ross (1981)
	State criteria for judging worth or benefit of action taken	• Ochoa-Becker (1999) • Schlitcher (1981) • Nelson (1984)
	Judge worth of decisions made	• Dybdal & Sondag (2000)
	Correctness of choice-some choices are more "reasonable" than others	• Mann, Harmoni & Power (1989)
	Understand need to use information for future decision making	• Elias & Tobias (1990)

The factors found in the literature to comprise decision-making were

1. define the problem;
2. generate alternatives;
3. check risks and consequences of choices;
4. select an alternative; and
5. evaluate the decision.

Within each factor were items that contributed to the skill. In order to capture each factor on the assessment instrument, multiple questions based on the sub-skills were employed. Generally, there were three to five questions that related to each factor asked on the assessment instrument. The response category for each question was a five-point Likert-type scale (1 = never to 5 = always) designed to determine frequency of use. For example, the items or questions that defined the sub-skill, "define the problem" were

- I easily identify my problem.
- I think about the problem before I take action.
- I look for information to help me understand the problem.
- I ask others to help me identify my problem.

Pilot-testing the assessment instrument

The evaluation instrument was pilot tested with 203 youth who attended a 4-H state achievement event. Parental consent and youth consent was acquired for youth to complete the decision-making assessment instrument. Adult volunteer leaders and/or county extension educators were given detailed information about administering the assessment instrument. Printed instructions were also provided for referral. The youth completed the assessment instrument during an orientation session with their adult leader or extension agent.

The assessment instruments were entered and analyzed following the completion of the instruments by youth. Specifically, the analysis involved conducting reliability tests to determine whether items that were designed to address a factor actually hung together. Only the items for the "identifying alternatives" factor were found to have a low reliability coefficient. This scale was revised and re-tested with a smaller group of youth. For the other factors, the items behaved similarly and had Cronbach's Alpha coefficients that ranged from .63 to .88 (see Table 2). Following the reliability analysis, three of the items were removed, in addition to the revision of the items for the "identifying alternatives" factor. Next, a Confirmatory Principal Component Analysis was conducted to test the item loadings for each of the factors. Factor loadings ranged from .508 to .878 (see Table 2). One item from the factor, entitled, "Identifying Alternatives" was removed, as it did not successfully load on this scale or any other scale. An item from the factor entitled, "Evaluate Decision" loaded higher on the factor "Select an Alternative" and was moved to that factor. The revised decision-making assessment instrument can be obtained by contacting the authors.

Table 2: Reliability and confirmatory principal component analysis

Factor	Item	Principal Component Analysis
Define the Problem (alpha = .6340)	**I easily identify my problem.**	.609
	I think about the problem before I take action.	.779
	I look for information to help me understand the problem.	.781
	I ask others to help me identify my problem.	.580
Identify Alternatives (alpha = .7057)	**I think about ways of dealing with my problem.**	.809
	I think before making a choice.	.738
	I discuss choices with my friends.	.896
	I discuss choices with my parents.	.738
Identify Risks and Consequences (alpha = .6577)	**I look for positive points of possible choices.**	.769
	I look for negative points of possible choices.	.750
	I consider the risks of a choice before making a decision.	.824
	I consider the benefits of a choice before making a decision.	.816
Select an Alternative (alpha = .8456)	**I make decisions based on what my parents tell me.**	.508
	When faced with a decision, I realize that some choices are better than others.	.765
	I make a decision by thinking about all the information I have about the different choices.	.829
	I prioritize my choices before making a decision.	.752
Evaluate Decision (alpha = .8960)	**Before making another decision, I think about how the last one turned out.**	.837

	I do think of past choices when making new decisions.	.878
	If I experience negative consequences, I change my decision the next time.	.764

Application of assessment instrument within extension

Similar to the Barkman model (Barkman 2002), this assessment instrument is available to 4-H youth and family and consumer science educators to use as a pre-post or post-post assessment of decision-making skills among youth in their programs. Recently, the assessment instrument was placed on the Web and educators can enter their own data for a group of youth enrolled in their program. However, to use the assessment instrument with youth in a particular program, the program must have at least five one-hour sessions, as one-session events are not considered a program by this definition. The five or more sessions can be conducted over the course of several months or all occur in one week.

After the data are entered, the educators are able to run a statistical program that provides them with a summary analysis indicating the percent change in decision-making skills from the two (pre/post or post/post) assessments. A t-value is also calculated to indicate significant change for the factors and individual items. Interpretation is limited to correlational analysis; a causal relationship between the program and individual's changes in decision-making skills cannot be examined under the current design. Many other factors, including influences from family, school, other educational programs, religion, and even maturation of youth, may influence the percent change in use of skills. However, the change in frequency in decision-making skills and trends may be associated with the impact of the non-formal educational youth program as well.

Conclusion

Decision-making can be taught in a variety of curriculum areas, such as resource management, food and nutrition, textile science, health, and personal development. Educational resources are needed for teachers and volunteers using curricula to effectively convey the steps in the decision-making process to ensure that youth understand and practice the skills necessary to make sound decisions. Youth curricula should be designed to include both activities that teach decision-making skills and opportunities for youth to practice these skills.

Further research is needed to explore the frequency of use of decision-making skills among different groups of youth. Comparing 4-H participants' use of sound decision-making skills with youth who do not join organizations or who join other non-formal educational programs (e.g., Boys Scouts, Girls Scouts, Boys and Girls Clubs) would provide information for educators and

curriculum developers regarding needed educational resources. Developing a parallel assessment instrument for younger youth is also needed. In addition, how to assist practitioners in the use of such assessment instruments for program evaluation, both formative and summative, also needs to be examined.

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Cite this article:

Mincemoyer, Claudia C., and Daniel F. Perkins. 2003. Assessing decision-making skills of youth. *The Forum for Family and Consumer Issues* 8(1).