Measuring Social and Emotional Content in Educational Television for Children

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THESIS

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LIST OF ABBREVIATIONS

APPC	Annenberg Public Policy Center
E/I	Educational/Informational
FCC	Federal Communications Commission
SEL	Social and emotional learning
SELECT	Social and Emotional Learning in Educational Children's Television rating instrument

SUMMARY

Rigorous measurement is vital to the exploration of educational children's television and its effects on children's social and emotional development. This study used the first and only rating instrument designed to assess social and emotional learning (SEL) content in educational/informational (E/I) children's television episodes. Raters used the Social and Emotional Learning in Educational Children's Television (SELECT) measure to assess episodes' emphasis on six SEL skills and use of five pedagogical techniques. Three raters rated 80 episodes of E/I series for children under age 10. Results from multi-facet Rasch analyses indicated that the SELECT is psychometrically sound. We explored three key questions: (a) What SEL skills do episodes emphasize most strongly? (b) What pedagogical techniques do episodes use most frequently? and (c) What does social and emotional content in E/I programs look like? As predicted, episodes emphasized social skills and decision-making skills more than personal SEL skills. Episodes were also more likely to emphasize SEL skills by incorporating them into the narrative plotline than to provide direct instruction in SEL. While our sample of episodes included fewer SEL skills and pedagogical techniques than classroom-based SEL interventions might, they displayed a commitment to demonstrating SEL within the context of an entertaining narrative. We discuss the state of SEL content in E/I programming and provide recommendations for program producers.

1.INTRODUCTION

When children watch "educational" television, what do they learn? To meet a Federal Communications Commission (FCC) requirement, all network broadcasters air three hours of educational/informational (E/I) programs for children each week (FCC 1996). Some might assume that these programs teach children about academic subjects, such as science or reading, but E/I programs actually tend to focus on social and emotional themes rather than other educational subjects (Jordan, Schmitt, & Woodard, 2001; Wilson, Kunkel, & Drogos, 2008). These themes are thought to promote social and emotional learning (SEL), which is a process for developing the skills to form healthy relationships, make good decisions, and understand and manage one's emotions (Zins & Elias, 2006). What does SEL content in E/I programs look like, and is it educationally sound? We cannot answer these questions without rigorous measurement. Thus we present a new tool, the Social and Emotional Learning in Educational Children's Television (SELECT) rating instrument.

1.1 Describing Educational/Informational Episodes

To date, no one has thoroughly described E/I episodes in terms of what SEL skills they emphasize and how they teach those skills. The Annenberg Public Policy Center (APPC) has come the closest; they devised a rating instrument to measure E/I episodes' general, non-content-specific educational quality. Based on FCC guidelines and expert recommendations, their five items covered overall educational quality, lesson clarity, lesson integration, lesson involvement, and lesson applicability. Using this instrument, Jordan and colleagues (2001) rated all E/I episodes broadcast in one media market during the 1998-1999 viewing season. They found most E/I episodes either moderately or highly educational. In support of this claim, children reported that they learned more from E/I episodes than from episodes without an explicitly stated

educational intent (Calvert & Kotler, 2003). Using a revised version of the APPC's instrument, researchers also found most E/I episodes in 2008 moderately educational (Wilson et al., 2008). Thus we know that episodes of E/I series are often educational, but are they optimized to teach social and emotional skills?

1.2 Educational/Informational Episodes and Social and Emotional Learning

In randomized, controlled trials children who watch prosocial TV programs exhibit more prosocial behavior (one aspect of SEL) than those who watch neutral or aggressive programs (Mares & Woodard, 2005). In fact, Mares and Woodard's (2005) meta-analysis indicated that prosocial television can affect children's behavior as strongly as aggressive television. SEL is even more powerful when taught well in classrooms and schools; it improves children's attitudes, behavior, and academic performance (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). School-based SEL also decreases the likelihood that children will commit crimes, use substances, skip or drop out of school, or develop other conduct problems (Wilson, Gottfredson, & Najaka, 2001). We created the SELECT to explore whether TV-mediated SEL is meeting its educational potential and to inform program improvements using concepts from classroom-based SEL.

1.3 The Social and Emotional Learning in Educational Children's Television Rating Instrument

The SELECT measures the strength of SEL content in episodes of E/I series. Episodes with strong SEL content emphasize multiple SEL skills using several pedagogical techniques, such as modeling and naming many SEL skills. Episodes with weak SEL content include few SEL skills and use few pedagogical techniques to teach them. Using the SELECT, raters indicate

whether episodes teach any of six SEL skills using any of five pedagogical techniques, described below. See Appendix A for the full scale and Appendix B for a complete coding manual.

1.3.1 Social and Emotional Learning Skills

Inspired by classroom-based SEL, the SELECT includes six SEL skills comprising three conceptual skill clusters: social, decision-making, and personal SEL skills. The social skills cluster consists of three skills: (a) cooperating/helping, (b) naming others' emotions, and (c) resolving conflicts nonviolently. A second cluster contains only (d) decision-making, because this skill can apply in both personal and social situations. The third cluster consists of two personal SEL skills: (e) naming one's emotions and (f) managing one's emotions (Collaborative for Academic, Social, and Emotional Learning, 2003).

1.3.2 Hypothesized Skill Hierarchy

Some say that broadcasters prefer SEL-related E/I programs over academic E/I content because they feel that SEL is easier to incorporate into an entertaining narrative episode format (Fisch, 2004; Jordan, 1999). We hypothesized that the same is true for specific SEL skills; episodes would be more likely to emphasize those SEL skills that are easy to depict in an entertaining narrative. Therefore, we predicted that episodes would emphasize social skills strongly, decision-making skills moderately, and personal SEL skills weakly. Social skills are easy to depict in a narrative because most plots involve interpersonal relationships. Decision-making skills may be relevant in some plots that involve problem resolution. However, because personal SEL skills apply mainly to thought processes, it may be difficult to depict them in an entertaining audio-visual narrative.

1.3.3 Pedagogical Techniques

Raters use the SELECT to assess which, if any, pedagogical techniques an episode uses to emphasize SEL skills. Initially we included eight pedagogical techniques on the SELECT. Later we removed three because few of the episodes we rated used those techniques. Table 1 lists the techniques and our rationale for measuring them. We drew them from Elias and Tobias' (1996) skill-teaching protocol and from Fisch's (2000) capacity model.

Elias and Tobias' (1996) classroom-based social-skills-training protocol inspired most of the pedagogical techniques on the SELECT. Their process involves clearly describing a new skill and its uses, teaching the skill in concrete steps, guiding rehearsal and feedback, and encouraging children to use the skill on their own (see Appendix A). Elias and Tobias integrated these techniques into "Talking with TJ," an empirically supported (Dilworth, Mokrue, & Elias, 2002; Rosenblatt & Elias, 2008) video-based social problem-solving intervention for grades 2-4.

Fisch's (2000) capacity model inspired us to assess plot-skill integration. According to Fisch (2000), children use their working memory to process television programs. Working memory capacity is finite, so narrative content (the plot of the episode) and educational content (the lesson in the episode) compete for limited processing resources. When children focus on narrative content, they fail to process educational content. To avoid this, program creators should integrate educational content into the episode's narrative rather than, for instance, depicting lessons in unrelated commercial-style segments. When educational content is relevant to the narrative, working memory processes both kinds of content simultaneously. This is likely to result in deeper comprehension of educational material.

TABLE I

PEDAGOGICAL TECHNIQUES INCLUDED ON THE SELECT[a]

Technique	Theoretical Basis	Other Relevant Research
1. Model the skill. (Skill modeling)[b]	"Teach the component parts (of the skill) through modeling." [c]	Children learn more from concrete modeling than from abstract concepts.[d, e]
2. Integrate the skill into the plot. (Skill-plot integration)	Skill-plot integration promotes deeper processing of educational material.[f]	Children learn more from plot-relevant material than from non-plot-relevant material. [g, h]
3. Depict the skill in a way that a child could apply. (Realistic skill portrayal)	"Prepare the group by describing situations in which the skill can be used." [c]	Children are more likely to use a prosocial skill if they have first seen it depicted in a similar situation on TV.[i]
4. Use the same name for the skill at least twice. (Skill naming)	"Teach a prompt or name for the skill to use when cuing the practice of the skill." [c]	Children are more likely to comprehend prosocial themes in TV programs when adults help them to label those themes.[j]
5. Encourage viewers to verbalize skill-related information. (Encouraged viewer verbalization)	"Provide hypothetical situations… for guided practice and rehearsal with feedback." [c]	
6. Describe the skill clearly.* (Skill definition)	"Explain the skill." "Break the skill down into its component parts." [c]	Children struggle to distinguish important vs. peripheral content[k, l]; a description may help them recognize the skill.
7. Clearly explain why the skill is useful.* (Skill function explanation)	"(Describe) situations in which the skill can be used… and elicit a rationale from the group for the importance of the skill." [c]	Children may fail to acquire or exercise a skill if it does not seem useful to them.[j]
8. Explicitly encourage viewers to use the skill in their own lives.* (Encouraged skill use)	"Encourage use of the skill inside and outside of the session and integrate with other skills when possible." [c]	

[a] SELECT = Social and Emotional Learning in Educational Children's Television rating instrument.

[b] Technique abbreviations are in parentheses.

* = Removed from the SELECT due to insufficient data.

[c] = (Elias & Tobias, 1996, pp. 32-33).

[d] = (Mares, 2006).

[e] = (Mares & Acosta, 2008).

[f] = (Fisch, 2000).

[g] = (Hall & Williams, 1993).

[h =] (Goodman, Rylander, & Ross; 1993).

[i]= (Mares & Woodard, 2005).

[j] = (Friedrich & Stein, 1975).

[k] = (Collins, Wellman, Keniston, & Westby, 1978).

[l] = (Ladd & Mize, 1983).

1.3.4 **Hypothesized Pedagogical Technique Hierarchy**

We distinguish between two conceptual clusters of pedagogical techniques: narrative-consistent and direct-instruction techniques. When program creators use narrative-consistent techniques, they emphasize SEL skills by including them in the episode's narrative structure. Skill modeling, skill-plot integration, and realistic skill portrayal are narrative-consistent techniques; they are ways to emphasize a skill as part of a story. By contrast, direct-instruction techniques draw specific attention to a particular SEL skill, causing it to stand out from the narrative. We assessed the following direct-instruction techniques: skill naming, encouraged viewer verbalization, skill definition, skill function explanation, and encouraged skill use. We hypothesized that episode creators would use narrative-consistent techniques more often than direct-instruction techniques to teach SEL skills because narrative-consistent techniques are easier to incorporate into an episode's narrative.

1.4 **The Present Study**

1.4.1 **Target Age Range**

The present study explored the SEL content of E/I episodes for children age 10 and younger, although most episodes in our sample target ages 4 to 8. Programs that meet this criterion are the most common in E/I programming and may have the greatest effect on children's SEL. Similar to the episodes in our sample, most E/I programs are targeted at elementary school-age children between ages 5 and 11 (Jordan et al., 2001). In addition, children ages 4-8 watch more television than older children; television viewing peaks in middle childhood at an average of 3.5 hours of television per day, then declines in adolescence (Rideout & Hamel, 2006; Scharrer & Comstock, 2003). Further, programs for this age range may have the greatest effect on SEL; a meta-analysis demonstrated that, "The effect of prosocial content increased

sharply between the ages of 3 and 7, peaked at age 7, declined steeply until age 12, and then declined more gradually after that" (Mares & Woodard, 2005, p. 315).

To explore SEL content in E/I programs targeted at this age group we proposed three research questions:

1.4.2 **Research Question 1**

Our first research question was as follows: Can raters use the rating instrument to measure social and emotional content in a meaningful, reliable and informative way? We first needed to determine whether the SELECT was psychometrically sound before we could use it to compare and contrast E/I episodes. We used multi-facet Rasch analysis to explore four psychometric properties of the SELECT: construct unidimensionality, rater performance, episode discrimination, and rating scale structure. If any of the pedagogical techniques and/or SEL skills were not contributing meaningfully to the measurement of a unidimensional underlying construct (i.e. SEL content strength), we could not combine ratings to create a meaningful summary measure of SEL content for each episode. If raters could not assign ratings to the episodes in a consistent manner, the rating data would be unreliable. If the SELECT did not allow us to reliably distinguish among episodes that demonstrate stronger and weaker SEL content, it would not be useful. Finally, if either rating category (i.e., "Yes" or "No") for any SEL skill or pedagogical technique provided more "noise" than meaningful statistical information for measuring SEL content strength, we would need to consider deleting that skill or technique or revising the rating scale.

1.4.3 **Research Question 2**

Second, we asked: Which SEL skills do E/I episodes emphasize most strongly? Which pedagogical techniques do E/I episodes use most frequently? We predicted that episodes would

strongly emphasize social skills, moderately emphasize decision-making skills, and weakly emphasize personal SEL skills. We also hypothesized that episode creators would use narrative-consistent techniques more frequently than direct-instruction techniques to teach SEL skills. To answer these questions we examined the SEL skill and pedagogical technique cluster measures from a multi-facet Rasch analysis (as well as the average raw scores for these clusters).

1.4.4 **Research Question 3**

Our third research question has two parts: What does social and emotional content in E/I programs look like? Which episodes displayed stronger or weaker SEL content? For these two questions we made no predictions. Rather, from our research we hoped to learn how many SEL skills and pedagogical techniques episodes tended to include so that we could better describe the state of the field. We also hoped that at least some of these episodes would serve as exemplars, demonstrating what strong SEL content looks like. To answer these questions, we examined the episodes' raw scores on the SELECT and their Rasch SEL content measures from a multi-facet Rasch analysis.

2. METHODS

2.1 Sample Selection and Characteristics

2.1.1 Series Screening

Each network broadcaster must submit its E/I series to the Federal Communications Commission quarterly. The broadcaster must describe the content, target age range, and number of airings for each E/I series (Federal Communications Commission, 1996). We sampled from the FCC's online database of broadcasters' E/I submissions (http://licensing.fcc.gov/KidVid/public/report/10/query.faces). We selected E/I programs that aired during 2010 Quarter 3 (Q3) (July 1 through September 30, 2010) and Quarter 4 (Q4) (October 1 through December 31, 2010). We used sampling criteria to reduce construct-irrelevant variance in series' (1) geographical media market, (2) target age range, (3) primary language, and (4) network support (how many times the series aired). The criteria follow.

1. A Chicago-market broadcast network (ABC, CBS, NBC, Fox, PAX, or CW) affiliate must have submitted the series as E/I programming for 2010 Q3 or Q4.
2. Series must be targeted at children younger than age 10. For example, a series targeted at 7- to 12-year-olds would screen out. A series for 6- to 10-year-olds would screen in. Because broadcasters often cater to one or a few age ranges, limiting the age requirement any further would introduce substantial broadcaster bias.
3. Series' primary language must be English.
4. The broadcaster must have aired the series at least three times during 2010 Q3 or Q4.

Chicago-market broadcast network affiliates' offerings are likely to provide a nationally representative selection of E/I programs, such that the findings of this study would generalize to other media markets. Network affiliates across the nation tend to air E/I programming provided

by national networks (Schmitt, 1999). For instance, NBC affiliates in most cities are likely to air the same NBC-provided E/I content.

The Chicago TV market receives E/I programming from nine broadcast-network affiliates: one each of CBS, PAX, CW, Telefutura, and ABC; and two each of Fox and NBC. For 2010 Q3 and Q4, these nine stations submitted 147 E/I series to the FCC, including many series that aired on multiple stations or during both quarters. Of these 147 series submissions, 91 were over the target age limit. One aired in Spanish. This left 56 eligible series submissions. When we removed series that were listed repeatedly, the final sample consisted of 20 unique series.

2.1.2 **Series Sample Characteristics**

See Table 2 for details about each series. The Chicago-market ION affiliate aired 15 qualifying series, NBC affiliates aired 12, the CBS affiliate aired 4, and the CW affiliate aired 1. Affiliates of Fox and ABC did not air any eligible series. In this sample the lowest target age is 2; the highest is 9.

2.1.3 **Episode Sample**

We rated 80 episodes—a convenience sample of four episodes per series. This exceeds 62 episodes, the minimum sample size required to obtain a stable Rasch SEL content measure for each episode (Linacre, 1994). We recorded some episodes as they aired on television between January and April 2011. We obtained other episodes online or on DVD. Where possible we sampled from network records of specific episodes that aired during 2010 Q3 or Q4. Where such records were unavailable, we randomly selected four episodes from the most recent season available. This strategy worked best under our budgetary and time restraints, but the episodes we rated may not be representative of all episodes in a given series.

Table II

SERIES SAMPLE CHARACTERISTICS

Series Title	Broadcaster	Target Age Range
321 Penguins	WCPX-TV (ION)	4—8
	WMAQ, WSNS (NBC)	
	WSNS (NBC)	
Adventures from the Book of Virtues	WCPX-TV (ION)	4—8
Barbar	WCPX-TV (ION)	4—8
	WMAQ (NBC)	
	WSNS (NBC)	
Boo	WCPX-TV (ION)	2—5
Busytown Mysteries	WBBM (CBS)	3—7
Doodlebops Rockin' Road Show	WBBM (CBS)	3—8
Jane and the Dragon	WCPX-TV (ION)	4—8
	WMAQ (NBC)	
	WSNS (NBC)	
Magic School Bus	WCPX-TV (ION)	4—9
Magical DoReMi	WGN-TV (CW)	3—7
Marvin the Tap Dancing Horse	WCPX-TV (ION)	4—8
My Friend Rabbit	WCPX-TV (ION)	4—8
Mysteries of Alfred Hedgehog	WCPX-TV (ION)	6—8
Noonbory and the Super 7	WBBM (CBS)	3—6
Pearlie	WCPX-TV (ION)	4—8
Postman Pat	WCPX-TV (ION)	4—8
Shelldon	WCPX-TV (ION)	4—8
	WMAQ (NBC)	
	WSNS (NBC)	
Strawberry Shortcake	WBBM (CBS)	3—6
Turbo Dogs	WCPX-TV (ION)	4—8
	WMAQ (NBC)	
	WSNS (NBC)	
Willa's Wild Life	WCPX-TV (ION)	4—8
	WMAQ (NBC)	
	WSNS (NBC)	
Zula Patrol	WCPX-TV (ION)	4—8

2.1.4 **Unit of Analysis**

The unit of analysis was a one half-hour episode, excluding title sequences, commercial breaks, and credit sequences. Some half-hour episodes consisted of two, 10- to 15-minute mini-episodes. We rated both mini-episodes separately and then created a full-episode rating using the highest rating attained for each dichotomous question. For two series, "Postman Pat" and "Noonbory and the Super 7," we could not obtain mini-episodes that typically aired in the same half-hour block. Instead, we randomly selected pairs from among the available mini-episodes.

2.2 **Rating Instrument**

The SELECT measures SEL content in E/I episodes. It addresses six SEL skills: cooperating/helping, naming others' emotions, resolving conflicts nonviolently, decision-making, naming one's emotions, and managing one's emotions. Raters rate whether the episode used any of five pedagogical techniques to promote each SEL skill: skill modeling, skill-plot integration, realistic skill portrayal, skill naming, and encouraged viewer verbalization. Thus, within each of the six SEL skills, the rater assigns a rating of 0 ("no") or 1 ("yes") for each of the five pedagogical techniques, yielding a matrix of thirty cells, each containing a rating of either 0 or 1 (see Table 3). Therefore, total raw scores range from 0 to 30. This yields a more fine-grained picture of an episode's SEL content than simple global ratings of SEL skills or of pedagogical techniques for each episode. Raters assigned ratings while they watched the episode, pausing and rewinding as necessary to clarify. Raters also wrote where in the episode they noticed each SEL skill. We did not analyze this data; it was for rater training and instrument refinement purposes only.

TABLE III

MATRIX DEPICTING THE FIVE PEDAGOGICAL TECHNIQUES AND SIX SEL SKILLS INCLUDED ON THE SELECT

	Pedagogical Technique				
SEL skill	Skill modeling	Realistic skill portrayal	Skill-plot integration	Skill naming	Encouraged verbalization
Cooperating/helping	Y/N	Y/N	Y/N	Y/N	Y/N
Naming others' emotions	Y/N	Y/N	Y/N	Y/N	Y/N
Resolving conflict nonviolently	Y/N	Y/N	Y/N	Y/N	Y/N
Decision-making	Y/N	Y/N	Y/N	Y/N	Y/N
Naming one's emotions	Y/N	Y/N	Y/N	Y/N	Y/N
Managing one's emotions	Y/N	Y/N	Y/N	Y/N	Y/N

To test our hypothesized hierarchies we grouped the individual SEL skills and pedagogical techniques into clusters. We created three SEL skill clusters: social skills (i.e., cooperating/helping, naming others' emotions, and resolving interpersonal conflicts nonviolently), decision-making skills, and personal SEL skills (i.e., naming one's emotions and managing one's emotions). We created two pedagogical technique clusters: narrative-consistent techniques (i.e., skill modeling, skill-plot integration, and realistic skill portrayal) and direct-instruction techniques (i.e., skill naming and encouraged verbalization).

2.3 **Procedure**

2.3.1 **Rater selection**

The lead researcher and two undergraduate research assistants (RAs) rated the episodes. We selected RAs from a volunteer pool based on their qualifications. RAs received course credit for their participation. RAs were psychology majors in their early 20s. The lead researcher and one RA were female.

2.3.2 **Judging Plan**

We used a fully-crossed judging plan: all three raters rated all 80 episodes. This allowed us to explore how different raters perceived the same SEL skills and pedagogical techniques within various episodes and to refine the instrument accordingly. Unfortunately, we lost Rater 2's ratings for one episode because our online data management system failed.

2.3.3 **Training**

The lead researcher trained the RAs to use the SELECT. They studied the coding manual over two weeks. They also used the SELECT to rate two practice episodes. We compared the RAs' practice ratings with the lead researcher's ratings, discussing and resolving discrepancies

until exact agreements were over 80%. After this initial training phase, raters independently rated eight to ten episodes per week from late January through April 2011.

2.3.4 **Institutional Review Board**

The Institutional Review Board at the University of Illinois at Chicago confirmed that this project does not include human subjects.

2.3.5 **Instrument Refinement and Reliability**

Each week we performed a multi-facet Rasch analysis (described later) on the ratings assigned. We met weekly to discuss ratings that appeared in the Table of Unexpected Responses in the output from each analysis. This table lists ratings that are highly inconsistent with overall scoring patterns. We discussed the accuracy of each unexpected rating. If we deemed an unexpected rating to be accurate, we did not alter it. When we decided that an unexpected rating was inaccurate, we changed it. There were several types of rating inaccuracies: simple mistakes, missed examples, misapplied rating criteria, and ratings that became inaccurate as we refined rating criteria. We corrected 74 inaccuracies, or 0.6% of our ratings. This process helped us to refine the instrument and prevent rater drift.

We also examined the complete dataset to ensure that we had a sufficient number of ratings to obtain a stable, precise measure for each SEL skill and pedagogical technique. We noted fewer than 10 instances of three pedagogical techniques in our sample: explaining skill usefulness, encouraged skill use, and skill description. Consequently, because there were too few ratings for these pedagogical techniques to obtain stable, precise measures for them, we removed them (and their associated ratings) from the dataset. Thus, the final SELECT rating instrument included six SEL skills and five pedagogical techniques.

1. RESULTS

First we describe the statistical method we used, multi-facet Rasch measurement analysis. We explain the advantages of this method, describe the measurement models, and explain how to interpret some key statistics that our analyses generated. Next, we report on the psychometric properties of the SELECT. We needed to ensure that the rating instrument is psychometrically sound before we could use it to answer our remaining research questions. We then identify which SEL skills episodes emphasized strongly and weakly. We also identify which pedagogical techniques episodes used more and less frequently. We describe the SEL content of E/I episodes as a whole. Finally, we identify one episode that displayed strong SEL content and compare it to one episode that displayed weak SEL content, explaining what set them apart.

3.1 Multi-facet Rasch Measurement Analysis

3.1.1 Advantages of Using Multi-Facet Rasch Measurement Analysis

We used the Facets (v3.67.0) software to run multi-facet Rasch analyses on the data (Linacre, 2010). This statistical method has certain advantages over other approaches for analyzing rating data. If data demonstrate sufficient fit to the Rasch model, we can directly compare the strength of SEL content in each episode, the leniency of each rater, the strength of emphasis on each SEL skill, and the frequency of use of each pedagogical technique (see Figure 1). This allows us to explore which specific pedagogical techniques and SEL skills set stronger episodes apart from weaker episodes.

Multi-facet Rasch analysis also aids in instrument refinement because it allows the researcher to pinpoint unexpected ratings associated with specific raters, pedagogical techniques, and SEL skills (i.e., those ratings that do not “fit” with the other ratings that raters assigned to a

Figure 1. Variable map showing the ordering of the measures of the individual elements within each of the four SELECT facets (i.e., a separate measure for each episode, rater, SEL skill, and pedagogical technique). Higher measures represent more "Yes" ratings for a given episode, rater, SEL skill, or pedagogical technique. ● = 2 episodes. • = 1 episode. [a]= Measures for episodes represent SEL content strength. Measures for SEL skills represent SEL skill emphasis. Measures for pedagogical techniques represent pedagogical technique frequency. Measures for raters represent rater leniency.

Measure[a]	Episode	Rater	SEL Skill	Pedagogical Technique
				More "Yes" Ratings
10				Skill modeling
				Skill-plot integration
			Cooperating/helping	
9				
8				Realistic skill portrayal
7		3		
		1	Decision-making Naming others' emotions	
6	•		Naming one's emotions Resolving conflicts	
	●●●			
	●	2		
5	●			
	●●			
	●●●●●			
4	●●●•			
	●●•			
	●●●●		Managing one's emotions	
3	●●●●•			
	●●•			Skill naming
	●●●			
2	●●			
	●			
	●●			
1	•			Encouraged verbalization
0	•			
				More "No" Ratings

given SEL skill or pedagogical technique and thus may be inaccurate). The researcher can use this information to locate potential sources of error and refine the rating instrument (and raters' ratings) accordingly.

It is common for some raters to rate more severely than others. The multi-facet Rasch measurement model adjusts ratings for differences in rater severity, minimizing the effects of those unwanted sources of rater-related, construct-irrelevant variance. Accordingly, Rasch measures are calculated using model-based rating estimates (i.e., the ratings that the measurement model would have expected for a given episode, SEL skill or pedagogical technique had all raters exercised the same level of severity).

3.1.2 **Measurement Model**

For most analyses we examined four facets of the data: strength of SEL content by episode, rater leniency, SEL skill emphasis, and frequency of use of pedagogical techniques. We conducted a multi-facet partial credit analysis, modeling each rating scale for each pedagogical technique separately using the following measurement model:

$$\log [P_{nidjk}/P_{nidj(k-1)})] = B_n - D_i - S_d - C_j - F_{ik} \quad (1)$$

where

P_{nidjk} = the probability that episode *n* will receive a rating of *k* from rater *j* on pedagogical technique *i* for SEL skill *d*,

$P_{nidj(k-1)}$ = the probability that episode *n* will receive a rating of $k - 1$ from rater *j* on pedagogical technique *i* for SEL skill *d*,

B_n = the strength of SEL content in episode *n*,

D_i = the frequency of use of pedagogical technique *i*,

S_d = the strength of emphasis on SEL skill *d*,

C_j = the leniency of rater *j*, and

F_{ik} = the difficulty of scale category *k*, relative to scale category *k* - 1 for pedagogical technique *i*.

For one of our analyses we replaced the skill emphasis facet, S_d, with a skill cluster emphasis facet, K_d, so that we could directly compare the different skill clusters. For another analysis we replaced the pedagogical technique facet, D_i, with a pedagogical technique cluster facet, L_i, so that we could directly compare the two clusters of pedagogical techniques. See Appendix D for the corresponding measurement models.

3.1.3 **Interpreting Rasch Measures**

Output from a multi-facet Rasch analysis provides measures (with standard error estimates) of the strength of SEL content for each episode, the leniency of each rater, the strength of emphasis on each SEL skill, and the frequency of use of each pedagogical technique. By default, measures obtained from a multi-facet Rasch analysis are reported on a linear, equal-interval logit scale that is centered on 0, yielding both positive and negative measures. For ease of interpretation, we linearly rescaled the SEL content measures so that the resulting scale would run from 0 to 10; thus, all our reported measures are positive. All facets are positively oriented for these analyses. In other words, the closer an episode's SEL content measure is to 10, the more ratings of 1 (i.e., "Yes") raters assigned to individual SEL skills and pedagogical techniques for that episode. The same is true for raters, SEL skills, and pedagogical techniques. A higher SEL content measure indicates more ratings of 1 (i.e., "Yes") for that episode, rater, SEL skill, or pedagogical technique.

3.1.4 **Interpreting Fit Indices**

We used the Rasch-generated infit mean-square statistic as an index of rating instrument (and rater) quality. This value represents how closely ratings for raters, episodes, SEL skills and

pedagogical techniques adhere to Rasch model expectations. The infit mean-square statistic has an expected value of 1. Infit mean-square values below 0.5 indicate that ratings are not providing unique, independent data. For example, in the case of raters, a rater infit mean-square less than 0.5 might indicate that that rater was not able to rate each pedagogical technique (or SEL skill) independently, but instead assigned many of the same ratings across pedagogical techniques and/or SEL skills (e.g., exhibited a halo effect). By contrast, infit mean-square values above 1.5 indicate that ratings are too unexpected to contribute meaningfully to the measurement of the construct. For instance, if a rater has an infit mean-square statistic above 1.5, then that would indicate that one or more of the rater's ratings were quite surprising, given the ratings that other raters assigned (Linacre, 2002).

The output from a multi-facet Rasch analysis also includes a point-biserial correlation coefficient for each facet's individual elements (i.e., each episode, rater, SEL skill, pedagogical technique, SEL skill cluster, and pedagogical technique cluster). The point-biserial correlation coefficient is a measure of the extent to which a high score (i.e., a "yes") for that particular element is associated with a high total score. Positive point-biserial correlation coefficients provide evidence of construct unidimensionality, while negative point-biserial correlation coefficients may indicate possible multidimensionality. However, when calculating point-biserial correlations, the Facets computer program takes into account the spread of a facet's element measures. If the distribution of element measures is narrow, then the point-biserial correlation coefficient for a given element will be a much less reliable indicator of the extent to which that element contributes to measurement of the construct than if the distribution of element measures is wide (Linacre, 1995). Consequently, one must exercise due caution when interpreting these statistics.

3.2 **Research Question 1**

Can raters use the SELECT to measure SEL content in a meaningful, reliable, informative way?

3.2.1 **Construct Unidimensionality**

We examined the infit mean-square statistics for the six SEL skills and the five pedagogical techniques to determine whether the skills and techniques worked together to define one unidimensional underlying construct, SEL content strength. The infit mean-square statistics for the six SEL skills ranged from 0.82 to 1.16 (see Table 4). Similarly, the infit mean-square statistics for the five pedagogical techniques ranged from 0.95 to 1.08. These findings indicate that the ratings of all the SEL skills and pedagogical techniques contributed to meaningful measurement of SEL content strength. In addition, the point-biserial correlation coefficients for the SEL skills and pedagogical techniques were all positive, suggesting that when an episode received high ratings for a particular skill or pedagogical technique, that episode also tended to receive high total scores.

The SEL skill clusters and pedagogical technique clusters also had acceptable infit mean-square statistics and positive point-biserial correlation coefficients, which we would expect because they consist of SEL skills and pedagogical techniques that demonstrated sufficient fit to the Rasch model. The pedagogical technique and SEL skill clusters are descriptively useful, but they are not measuring different constructs.

3.2.2 **Rater Performance**

The infit mean-square statistics were 1.07 for Rater 1, 0.99 for Rater 2, and 1.12 for Rater 3. These values all fall within an acceptable range (Wright & Linacre, 1994), indicating that each

rater was internally consistent when assigning ratings. However, Rater 3 was somewhat more lenient than the other two raters (leniency measure = 7.04; average raw score = 0.38), while

TABLE IV

SEL CONTENT MEASURES, INFIT MEAN-SQUARE STATISTICS, POINT-BISERIAL CORRELATIONS, AND AVERAGE RAW SCORES FOR INDIVIDUAL ELEMENTS OF THREE SELECT FACETS

Individual Elements of Each SELECT Facet	Measure [a]	Infit Mean-Square	Point-Biserial Correlation	Average Raw Score
SEL Skill				
Cooperating/helping	9.29 (0.15)[b]	1.01	0.42	0.56 (0.02)
Naming others' emotions	6.46 (0.13)	0.82	0.38	0.34 (0.03)
Decision-making	6.38 (0.13)	1.16	0.32	0.33 (0.03)
Naming one's emotions	5.98 (0.13)	0.88	0.35	0.30 (0.03)
Resolving conflicts	5.97 (0.13)	1.00	0.33	0.30 (0.03)
Managing one’s emotions	3.41 (0.16)	1.08	0.18	0.12 (0.02)
SEL Skill Cluster				
Social skills	7.23 (0.07)	0.95	0.37	0.40 (0.03)
Decision-making skills	6.50 (0.12)	1.10	0.32	0.33 (0.03)
Personal SEL skills	5.01 (0.09)	1.00	0.27	0.21 (0.03)
Pedagogical Technique				
Skill modeling	9.99 (0.10)	0.95	0.29	0.61 (0.05)
Skill-plot integration	9.56 (0.10)	0.95	0.29	0.56 (0.06)
Realistic skill portrayal	8.15 (0.10)	1.03	0.26	0.40 (0.05)
Skill naming	2.65 (0.23)	1.08	0.08	0.04 (0.02)
Encouraged verbalization	0.90 (0.36)	1.08	0.05	0.01 (0.01)
Pedagogical Technique Cluster				
Narrative-consistent	9.82 (0.06)	0.98	0.27	0.52 (0.05)
Direct instruction	2.68 (0.19)	1.07	0.07	0.03(0.01)
Rater				
3	7.04 (0.09)	0.90	0.38	0.38 (0.03)
1	6.27 (0.09)	1.07	0.34	0.33 (0.03)
2	5.43 (0.10)	0.99	0.34	0.27 (0.03)

[a] Standard errors are in parentheses.

[b] Measures for SEL skills and SEL skill clusters represent SEL skill emphasis. Measures for pedagogical techniques and pedagogical technique clusters represent pedagogical technique frequency. Measures for raters represent rater leniency.

Rater 2 was somewhat more severe (leniency measure = 5.43; average raw score = 0.27). Despite these differences, the three raters demonstrated 81.8% exact agreement in their ratings, which is above the model expectation of 75.5%. These findings suggest that raters used the SELECT in similar but not identical ways.

3.2.3 **Episode Discrimination**

Finally, we determined to what extent the SELECT allowed us to reliably distinguish episodes with stronger SEL content from episodes with weaker SEL content. The strata estimate was 3.43, indicating that using the SELECT, raters could detect over three statistically distinct levels of SEL content strength among episodes. This finding suggests that the SELECT is useful for comparing episodes' SEL content strength. Next, we examined the episode separation reliability, which can range from 0 to 1, with values near 1 indicating higher reliability. The episode separation reliability was .84, indicating that the ordering of episodes by their Rasch SEL content measures was reliable.

3.2.4 **Rating Scale Structure**

We also explored whether the yes/no rating scale functioned appropriately for each SEL skill and pedagogical technique. We examined rating scale category statistics first for each SEL skill (collapsing across pedagogical techniques), and then for each pedagogical technique (collapsing across SEL skills). Raters assigned at least 10 ratings in each category ("Yes" or "No") for each SEL skill and pedagogical technique, which means we had sufficient information to obtain precise, stable rating scale calibrations (Linacre, 2004).

We found that episodes that scored high overall were more likely to receive "Yes" ratings than "No" ratings for each individual SEL skill and pedagogical technique. This indicates that the yes/no rating scale functioned as intended.

We also examined the outfit mean-square statistics for the rating scale categories. Outfit mean-square statistics have the same expected value (1) as infit mean-square statistics. With one exception, all the outfit mean-square statistics for the rating scale categories for the SEL skills and pedagogical techniques were below 2.0, indicating that raters used each category consistently when rating each skill and technique (Linacre, 2004). However, for skill naming (a pedagogical technique) the "Yes" category had an outfit mean-square statistic of 3.6. This suggests that at least one detected instance of skill naming was very inconsistent with the overall pattern of ratings. We identified these unexpected instances and verified that each met our rating criteria. Therefore, we chose not to remove the ratings for skill naming from the dataset (or to remove skill naming from the instrument) (Linacre, 2004).

3.3 **Research Question 2**

Which SEL skills do episodes emphasize most strongly? Which pedagogical techniques do episodes use most frequently?

To answer these questions we examined the measures for the SEL skills and for the pedagogical techniques. If episodes strongly emphasized a certain SEL skill (or frequently used a particular pedagogical technique), then that skill (or technique) would have a high measure. By contrast, if episodes weakly emphasized a certain SEL skill (or infrequently used a particular pedagogical technique), then that skill (or technique) would have a low measure.

3.3.1 **Skill Clusters**

As shown in Table 4, the ordering of the SEL skill-cluster measures supported our hypothesis; episodes emphasized social skills strongly, decision-making skills moderately, and personal SEL skills weakly. The results from independent means *t*-tests demonstrated that all three SEL skill clusters were significantly different from one another: personal SEL skills and

decision-making skills, $t(79) = 9.00$, $p < .05$; decision-making skills and social skills, $t(79) = 4.88$, $p < .05$; and personal SEL skills and social skills, $t(79) = 17.92$, $p < .05$. Figure 2a depicts this pattern of results in terms of average raw scores. Next we examined measures for the individual SEL skills to explore which specific skills episodes emphasized most within each cluster.

3.3.2 **Individual Skills**

See Table 4 and Figure 1 for the measures for individual SEL skills. Because we were making multiple post-hoc comparisons, we employed a Bonferroni correction when testing for significance to minimize the risk of Type 1 errors. Within the social skill cluster, episodes emphasized cooperating/helping more strongly than naming others' emotions, $t(79) = 14.23$, $p < 0.02$; and naming others' emotions more strongly than nonviolent conflict resolution, $t(79) = 2.67$, $p < .02$. Within the personal SEL skill cluster, episodes emphasized naming one's emotions more strongly than managing one's emotions, $t(79) = 12.47$, $p < .02$.

3.3.3 **Pedagogical Technique Clusters**

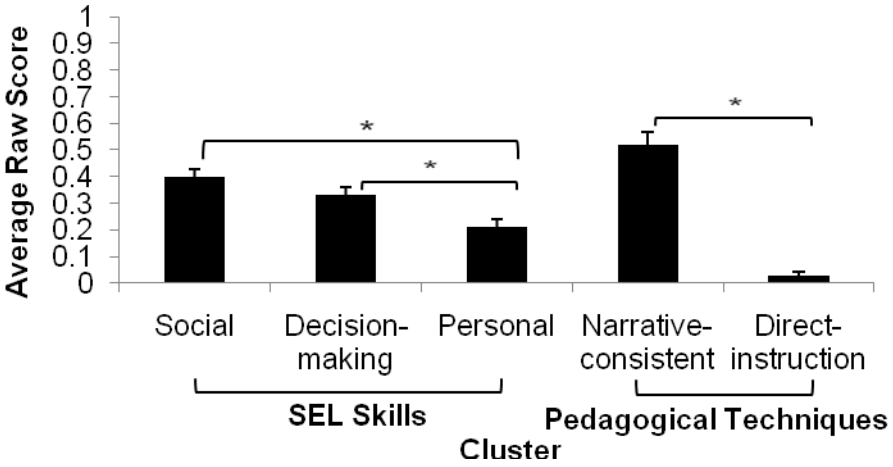
The results support our hypothesis: episodes used narrative-consistent techniques more frequently than direct-instruction techniques. The fixed (all-same) chi square statistic is significant, $p < .05$, indicating that episodes were significantly more likely to use narrative-consistent techniques than direct-instruction techniques. Figure 2a indicates that the average raw scores for pedagogical technique clusters also support this finding. Table 5 shows that episodes were more likely to use narrative-consistent than direct-instruction pedagogical techniques to emphasize all six SEL skills.

TABLE IV

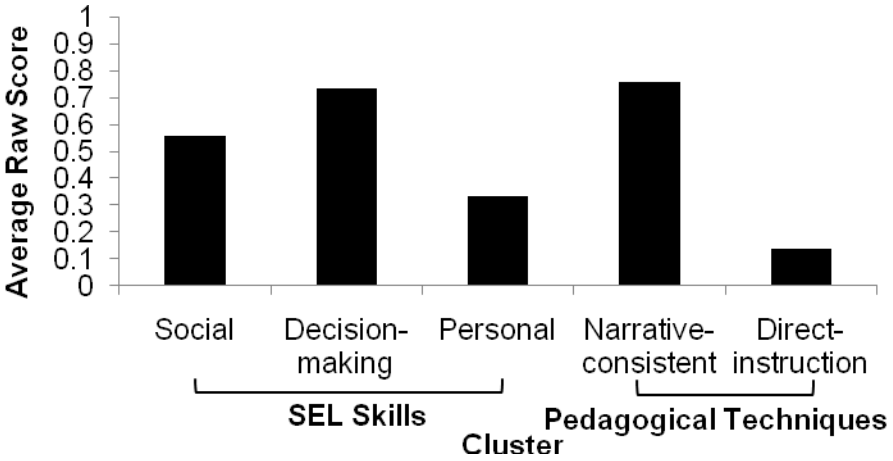
PERCENTAGE OF EPISODES THAT USED EACH PEDAGOGICAL TECHNIQUE TO EMPHASIZE EACH SEL SKILL

	Pedagogical Technique				
SEL skill	Skill modeling	Realistic skill portrayal	Skill-plot integration	Skill naming	Encouraged verbalization
Cooperating/helping	98.73	75.95	97.47	22.78	7.59
Naming others' emotions	100.00	97.87	85.11	0.00	0.00
Resolving conflict nonviolently	100.00	77.27	95.45	2.27	0.00
Decision-making	100.00	75.00	97.50	7.50	2.50
Naming one's emotions	100.00	100.00	80.95	0.00	0.00
Managing one's emotions	94.74	89.47	84.21	26.32	0.00

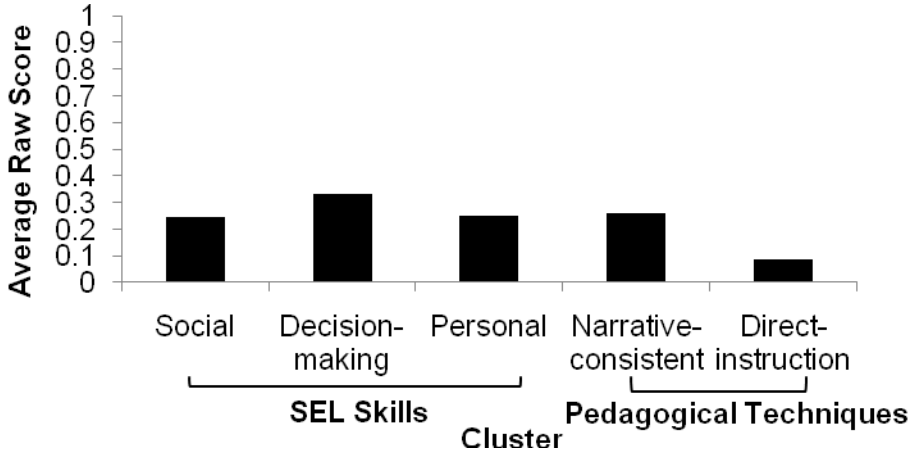
Figure 2. Average raw scores for SEL skill clusters and pedagogical technique clusters rated on the SELECT. Averages include ratings from all three raters. Pedagogical technique cluster scores are averaged across all SEL skills. SEL skill cluster scores are averaged across all pedagogical techniques. Error bars represent standard errors. Asterisks over brackets denote significant differences at $p < .05$.



a. Average raw scores for the full sample of 80 E/I episodes.



b. Average raw scores for the episode in our sample with the strongest SEL content, "The Sound of Silence/Mouse's Moss" from the series "My Friend Rabbit."



c. Average raw scores for an episode which demonstrated weak SEL content, "Obstacle Schmob-stacle" from the series "Magical DoReMi."

3.3.4 **Individual Pedagogical Techniques**

See Table 3 and Figure 1 for individual pedagogical technique measures. Again we employed a Bonferroni correction because we were making multiple post-hoc comparisons. Within the narrative-consistent technique cluster, episodes used skill modeling more frequently than skill-plot integration, $t(79) = 3.04$, $p < .02$; and they used skill-plot integration more frequently than realistic skill portrayal, $t(79) = 9.97$, $p < .02$. When episodes did use realistic skill portrayal, it was typically to emphasize naming others' emotions, naming one's own emotions, and managing one's emotions (see Table 5). Within the direct-instruction cluster, episodes used skill naming more than encouraged viewer verbalization $t(79) = 4.09$, $p < .02$. Those episodes that did include skill naming typically did so to emphasize cooperating/helping and managing one's emotions. When episodes encouraged viewer verbalization, it was typically used to promote cooperating/helping and decision-making (see Table 5).

3.4 **Research Question 3**

What does social and emotional content in E/I programs look like? Which episodes displayed stronger or weaker SEL content?

We used only the lead researcher's ratings to examine how many SEL skills and pedagogical techniques episodes included. Inclusion of an SEL skill means that a particular episode emphasized that SEL skill using any (one or more) pedagogical technique(s). Inclusion of a pedagogical technique means that a particular episode used that pedagogical technique to emphasize any (one or more) SEL skill(s). See Table 6 for percentages of episodes by number of skills and pedagogical techniques included. All of the episodes in our sample included at least one SEL skill. Most of the episodes (76.2%) included three or more SEL skills. Turning to

pedagogical techniques, all of the episodes included skill modeling and skill-plot integration. Almost all episodes (98.7%) included three or more pedagogical techniques.

TABLE V

PERCENTAGE OF EPISODES INCLUDING ZERO, ONE, TWO, THREE, FOUR, FIVE, OR SIX SEL SKILLS OR PEDAGOGICAL TECHNIQUES

Number Per Episode	*0*	*1*	*2*	*3*	*4*	*5*	*6*
SEL Skills	0	2.5	21.3	31.3	25.0	20.0	.0
Pedagogical Techniques	0	0	1.3	65.0	30.0	3.8	

The episode with the strongest SEL content consisted of two mini-episodes, “The Sound of Silence” and “Mouse’s Moss,” from the series “My Friend Rabbit” (See Table 7). Figure 2b displays the average raw score for each SEL skill cluster and pedagogical technique cluster for this episode. The episode placed above-average emphasis on social and decision-making skills. Additionally, it used narrative-consistent techniques much more frequently than direct-instruction techniques to teach the skills. However, the episode did employ a direct-instruction technique (skill naming) to teach two SEL skills.

In contrast, an episode called “Obstacle Schmob-Stacle” from the series “Magical DoReMi” demonstrated weak SEL content relative to other episodes in the sample. This episode weakly emphasized all three SEL skill clusters and rarely used any pedagogical techniques to teach the skills (see Figure 2b). Both the strong episode and the weak episode placed weak emphasis on personal SEL skills and employed direct-instruction techniques infrequently.

TABLE VI

SEL CONTENT MEASURES AND INFIT MEAN-SQUARE STATISTICS FOR ALL E/I EPISODES RATED USING THE SELECT

Episode	Series	SEL Content Measure	Infit Mean-Square
Sound of Silence/Mouse's Moss	My Friend Rabbit	6.02 (0.51)[a]	1.06
Visit to Grandma's/Gone Fishin'	Marvin[b]	5.69 (0.50)	0.61
Paint Your Wagon/Truth or Bear	Marvin	5.69 (0.50)	0.96
The Phantom	Barbar	5.69 (0.50)	1.16
Comedy of Errors	321 Penguins	5.53 (0.50)	0.90
Faith	Book of Virtues[c]	5.53 (0.50)	1.81
All Fools Day	Jane and the Dragon	5.53 (0.50)	0.84
Speak Up/Lucky Charm	Turbo Dogs	5.37 (0.50)	1.28
Nest Quest/Bouncy Bog	My Friend Rabbit	5.22 (0.49)	1.47
Remote Out of Control/Spooky Buggy	Turbo Dogs	5.07 (0.49)	0.76
A Tale of Two Siblings	Barbar	4.92 (0.49)	0.86
Sleds Away/A Rosy Day	Noonbory	4.77 (0.49)	1.01
Eddy and the Record/Marvin in the Movies	Marvin	4.62 (0.48)	0.93
Rowing Pains	Barbar	4.62 (0.48)	0.72
Flexes its Muscles	Magic Schoolbus	4.62 (0.48)	0.83
The Blueberry Beast	Strawberry Shortcake	4.47 (0.48)	1.70
Bad Hare Day/Baby It's You	Willa's Wild Life	4.47 (0.48)	0.84
Hidden Treasure/Up Up And Away	Willa's Wild Life	4.47 (0.48)	0.90
Trapped in the Shallows	Shelldon	4.33 (0.48)	0.88
Long Gone to Hong Kong/Who's Afraid of the Big Bad Vet	Willa's Wild Life	4.33 (0.48)	0.96
The Offer	Jane and the Dragon	4.33 (0.48)	0.68
The Big Show/Eddy's Fortune	Marvin	4.18 (0.48)	1.27
Hazel's Big Surprise/Last Leaf	My Friend Rabbit	4.18 (0.48)	1.18
There's No Business Like Shogi Business	Magical DoReMi	4.18 (0.48)	1.08
Flower Talk/If The Boot Fits	Pearlie	4.18 (0.48)	0.78
Branching Out/Willow Pond Wackadoo	My Friend Rabbit	4.04 (0.48)	0.82
Kiki's Gift/Santa's Cave	Noonbory	4.04 (0.48)	0.83
To Tell or Not to Tell	Barbar	4.04 (0.48)	0.83
Crabby's School Daze	Shelldon	4.04 (0.48)	1.34

SEL[a] CONTENT MEASURES AND INFIT MEAN-SQUARE STATISTICS FOR ALL E/I[b] EPISODES RATED USING THE SELECT[c]

Episode	Series	SEL Content Measure	Infit Mean-Square
Skater Love	Magical DoReMi	4.04 (0.48)	0.87
Great Flower Mystery/Who Knocked Out Grizz	Alfred Hedgehog[f]	3.90 (0.48)	0.74
Cornfield Confusion/Lighthouse Ghost Mystery	Busytown Mysteries	3.90 (0.48)	0.73
Postman Pat's Popstars/At the Seaside	Postman Pat	3.75 (0.48)	0.74
The Costume Party	Strawberry Shortcake	3.75 (0.48)	1.31
Jester Justice	Jane and the Dragon	3.75 (0.48)	0.76
Goes to Seed	Magic Schoolbus	3.75 (0.48)	0.79
The Mystery of Seaberry Beach	Strawberry Shortcake	3.61 (0.48)	0.90
Sticky Stuff Mystery/Up, Up, Up	Busytown Mysteries	3.47 (0.48)	0.97
Jumping Judy	Doodlebops	3.47 (0.48)	1.76
King's Knight	Jane and the Dragon	3.47 (0.48)	0.80
Responsibility	Book of Virtues	3.32 (0.48)	0.98
Self-Discipline	Book of Virtues	3.32 (0.48)	1.21
Crabby's Mega Books	Shelldon	3.32 (0.48)	0.94
Monster Mystery/Mystery of the Lost Parrot	Busytown Mysteries	3.32 (0.48)	1.09
Willa's Wild News/Willa's Journal	Willa's Wild Life	3.18 (0.48)	0.91
Dial A Dilemma/Throwing Down	Pearlie	3.18 (0.48)	0.94
Carnival of Complaining	321 Penguins	3.03 (0.48)	1.10
Haunting Sound/Marsh Mystery	Alfred Hedgehog	3.03 (0.48)	0.80
Magician/Dotty	Postman Pat	3.03 (0.48)	0.79
Ruffing It/All Systems No Go	Turbo Dogs	3.03 (0.48)	0.99
Tap Tap Tap	Doodlebops	3.03 (0.48)	1.70
Snip Snip/Moth Balls	Pearlie	3.03 (0.48)	0.83
Spriteful/The Big Sneeze	Pearlie	3.03 (0.48)	0.99
Bula's Spin Party/Day for Night	Zula Patrol	2.89 (0.48)	1.04
Probe Who Came to Dinner/Forget Me Naut	Zula Patrol	2.89 (0.48)	0.86
Space Invader/Fur Growing Tree	Alfred Hedgehog	2.89 (0.48)	0.79
Pond/Art Gallery	Boo!	2.89 (0.48)	1.06
Job Swap/Flying Post	Postman Pat	2.74 (0.49)	0.83
The Great Treasure	Shelldon	2.74 (0.49)	1.11
Job for the Zula Dudes/Comet's Tale	Zula Patrol	2.59 (0.49)	0.93
Disappearing Act/Invisibory	Noonbory[e]	2.59 (0.49)	0.84

SEL[a] CONTENT MEASURES AND INFIT MEAN-SQUARE STATISTICS FOR ALL E/I[b] EPISODES RATED USING THE SELECT[c]

Episode	Series	SEL Content Measure	Infit Mean-Square
Wobbly Whoopsy	Doodlebops	2.59 (0.49)	1.12
Phantom Footprints/Boo Radley's House	Alfred Hedgehog	2.44 (0.49)	0.75
Train Station/Canadian River	Boo!	2.44 (0.49)	1.28
Mystery Wheel/Busytown Blue Bottoms	Busytown Mysteries	2.44 (0.49)	0.87
Fair Play/King for a Day	Turbo Dogs	2.44 (0.49)	0.87
Honey of a Tale/Luky's Bubble Trouble	Noonbory	2.28 (0.50)	0.94
Move Groove	Doodlebops	2.28 (0.50)	1.27
Great Big Party/Surprise Present	Postman Pat	2.13 (0.50)	0.72
Deep Blue Sea/Castle	Boo!	1.97 (0.51)	0.95
Rockpool/Supermarket	Boo!	1.97 (0.51)	1.04
The Play's the Thing	Strawberry Shortcake	1.97 (0.51)	0.96
Train a Comin	Magical DoReMi	1.80 (0.51)	0.86
Trouble on Planet Wait Your Turn	321 Penguins	1.63 (0.52)	1.48
Selflessness	Book of Virtues	1.46 (0.53)	1.16
Small is Beautiful/Missing Rings	Zula Patrol	1.46 (0.53)	0.76
Meets the Rot Squad	Magic Schoolbus	1.46 (0.53)	1.14
Gets Ants in its Pants	Magic Schoolbus	1.46 (0.53)	0.79
Obstacle Schmob-Stacle	Magical DoReMi	1.09 (0.55)	0.71
More is More	321 Penguins	-0.02 (0.74)	0.65

[a] Standard errors are in parentheses.

[b] Marvin the Tap Dancing Horse.

[c] Adventures from the Book of Virtues.

[d] Doodlebops Rockin' Road Show.

[e] Noonbory and the Super 7.

[f] Mysteries of Alfred Hedgehog.

2. DISCUSSION

First describe SEL content in E/I episodes and relate it to existing research on effective pedagogy. Then we describe some limitations of our rating instrument and our sample. Finally we suggest future directions for research in TV-mediated SEL.

4.1 Findings and Implications

4.1.1 Psychometric Properties of the Instrument

As we hoped, ratings on the SELECT yield psychometrically sound information about the SEL content of E/I episodes for children under age 10. Raters can be trained to use the SELECT reliably, and their ratings can distinguish between episodes showing strong and weak SEL content.

4.1.2 Social and Emotional Learning Skills

As predicted, E/I episodes emphasize social skills most, decision-making skills moderately, and personal SEL skills least. This may occur because social and decision-making skills lend themselves better to narrative script-writing. Episodes were most likely to emphasize cooperating/helping. We cannot attribute this finding to incidental inclusion. That is, it is unlikely that episodes emphasized cooperation unintentionally (i.e., because their storylines happened to include this skill). Rather, episodes emphasized cooperating/helping deliberately and thoroughly: they often used several pedagogical techniques, sometimes even employing direct instruction, when presenting cooperating/helping. Meanwhile, episodes emphasized managing one's emotions least. This is unfortunate; studies indicate video modeling can, in fact, teach children self-controlled behavior (Elias, 1983; Friedrich & Stein, 1973; Mares, 1996).

4.1.3 Pedagogical Techniques

As predicted, when teaching SEL skills, episodes used narrative-consistent techniques more frequently than direct-instruction techniques. Episodes were most likely to include skill modeling. This is promising, because research indicates that skill modeling is more effective than direct instruction alone (Dickey, 1991; Gulian, 1986), and that children can learn prosocial behaviors from television models (Mares & Woodard, 2005). Program producers also tended to integrate SEL skills into the episode's plotline. In fact, every episode in our sample included at least one instance of plot-integrated SEL. This, too, suggests that SEL content in E/I programs is educational; children show better comprehension of plot-related educational material than of plot-irrelevant educational material in the same episode (Hall & Williams, 1993; Goodman, Rylander, & Ross; 1993). In addition, episodes were likely to demonstrate SEL skills in ways that are applicable to children's lives. This is beneficial; children are more likely to use SEL skills when they have first witnessed a video model using those skills in a similar situation (Mares & Woodard, 2005).

Episodes used far fewer direct-instruction techniques to teach SEL. In fact, we removed the following three direct-instruction skills from the SELECT because almost no episodes used them: skill definition, skill function explanation, and encouraged skill use. While some of the episodes included skill naming and viewer verbalization, these techniques were much rarer in our sample than narrative-consistent techniques. We measured direct-instruction techniques because research indicates that rehearsal and coaching are more effective skill-training techniques than modeling alone (Gesten et al., 1982; Gulian, 1986). However, encouraged viewer verbalization may be a poor proxy for rehearsal and coaching. Studies indicate that viewers' verbal participation while watching episodes does not facilitate their understanding of concepts, but rather reflects their pre-existing familiarity with the episode's format or content (Anderson et al.,

2000; Crawley et al., 1999, 2000). It seems that, while rehearsal and feedback are valuable learning experiences, television programs may not be able to approximate their effectiveness. For this reason, we encourage parents and educators to supplement E/I narratives with direct instruction. For instance, studies found that when adults asked 3- and 4-year-olds to name the letters and numbers they saw during an episode of "Sesame Street," those children were better able to remember those letters and numbers later (Reiser, Tessmer, & Phelps, 1984; Reiser, Williamson, & Suzuki, 1988). The same may hold true for SEL content.

Taken together, our findings indicate that E/I episodes tend to promote SEL content by emphasizing social and/or decision-making skills within the narrative. Episodes typically do not emphasize personal SEL skills or use direct-instruction techniques to teach the SEL skills, perhaps because they disrupt the flow of the narrative. This suggests that SEL in E/I episodes includes a more limited range of SEL skills and pedagogical techniques than we might find in school-based SEL. Children's television programs tend to emphasize only the SEL skills and to use only the pedagogical techniques that are unlikely to disrupt narrative flow. Meanwhile, school-based SEL-promotion programs may also emphasize less engaging SEL skills and use pedagogical techniques that involve instructor-participant interaction or direct instruction. Thus E/I programs may promote a narrower range of SEL-related outcomes than classroom-based SEL programs.

However, we found that within the requirements of an entertaining narrative format, episodes provided fairly thorough coverage of SEL skills. Most episodes included two or more SEL skills and three or more SEL-promoting pedagogical techniques. All of the episodes used skill modeling and skill-plot integration to emphasize at least one SEL skill. Thus, while our sample of episodes received relatively low scores on the SELECT (see Figure 1), their SEL

content is still educational. We recommend that program producers improve future episodes by ensuring that each SEL skill within an episode is modeled, plot-relevant, and portrayed realistically.

Should program producers wish to promote SEL using direct instruction, we suggest a strategy exhibited by four episodes in our sample that received highly unexpected ratings. (We deemed these ratings accurate and did not remove them from the dataset.) These episodes used direct-instruction techniques in ways that few other episodes did. All four episodes included skill naming in songs. Two of the episodes encouraged viewer verbalization in the form of viewer-participation guessing games. This suggests that it is easier to use direct-instruction techniques to teach SEL skills when those techniques are part of recurring, entertaining features such as games and songs.

4.2 **Limitations**

4.2.1 **Rating Instrument**

While useful, the SELECT needs some revision. This study is an instrument refinement exercise, not a validation study. Preliminary evidence suggests that the SELECT is psychometrically sound, but we do not know if the instrument would function as well without constant rater quality control monitoring and periodic investigation of unexpected ratings. While we determined that only 0.6% of the total ratings were inaccurate and thus needed to be changed, the continuous process of retraining raters and refining the coding manual may have artificially inflated our percentage of exact rater agreements and the degree of rater interchangeability while underestimating the amount of rater misfit. We carefully monitored and recalibrated the raters in this study. This may not occur in other ratings-based studies, which limits the generalizability of our findings.

In the interest of parsimony we did not include some SEL skills and pedagogical techniques on the SELECT. If episodes emphasized SEL skills that the SELECT does not include (e.g., appreciating diversity or listening), then they might have received unfairly low SEL content ratings. In the process of rating episodes, the raters noticed that the SELECT does not include some relevant pedagogical techniques, such as emphasizing skills repeatedly and demonstrating positive consequences of SEL skill use. Further, we did not assess the degree to which episodes depicted positive use of SEL skills versus misbehavior or misapplied skill use. Young children's social behavior tends to benefit more from television programs that only depict positive social behavior, rather than a mix of prosocial and antisocial behavior (Lovelace & Huston, 1983; Mares & Woodard, 2005; Silverman & Sprafkin, 1980). Future versions of the SELECT should include more SEL skills and pedagogical techniques to ensure that we are more fully capturing the range of SEL content in E/I episodes.

4.2.2 **Sample**

Our convenience sample may not be representative of all E/I episodes. The episodes we rated may have been available to us (on websites and DVDs) because program producers felt they were exemplary. However, in a previous study Woodard (1999) found no difference in the educational quality of E/I episodes researchers taped off the air versus episodes that broadcasters (who have a stake in the episode's ratings) selected for review. Perhaps there is little variability in the quality of episodes within a given series. Of course, our findings also may not generalize to series for older children.

In addition, for two series, "Postman Pat" and "Noonbory and the Super 7," we created artificial half-hour episodes by randomly selecting two mini-episodes from those available (see

Method section). These randomly chosen mini-episode pairings may not be representative of typical episodes for these shows.

4.3 **Future Directions**

The next step is to conduct a more rigorous evaluation of the SELECT. Should the SELECT prove useful even without constant rater quality control monitoring and investigation of specific unexpected ratings, we can then use it to explore new questions. For instance, do episodes with higher SEL content measures actually produce greater behavior changes in children? If yes, we will have evidence of the possible impact of SEL skill emphasis and pedagogical technique use on children's behavior. Further, we will be able to deduce that episodes emphasize SEL more effectively when they use not only narrative-consistent pedagogical techniques but also direct-instruction techniques—a topic unexplored in the literature to date. Future studies could also examine the association between episodes' SEL content measures and their Nielsen viewership ratings. If a program has stronger SEL content, do more children watch it? If yes, this may indicate that children are drawn to strong SEL content. If not, this may mute the impact of the programming on children's behavior. If children do not want to watch a TV program, they are unlikely to learn from it no matter how educational it is. Future studies could also use this study's methodology to rate a sample of E/I programs targeted at older children. It will be informative to explore the ways in which SEL skill emphasis and pedagogical technique usage change with target audiences of different ages.

Finally, we believe this study demonstrates that it is possible and informative to measure the SEL content of children's television rigorously. Accurate measurement, using instruments like the SELECT, may be helpful for media researchers, producers, consumers, and policy makers. It allows researchers to quantify an episode's content, which provides a foundation for

future studies of episodes' effects on children. It provides detailed analyses of episodes' strengths and weaknesses to guide content development. It allows parents and educators to directly compare and select episodes on the strength of their SEL content. And someday it may help policymakers ensure that broadcasters are airing truly educational and informational television.

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APPENDICES

APPENDIX A

Social and Emotional Learning in Educational Children's Television (SELECT)

Rater:

Series:

Episode:

Naming or predicting one's own emotions.

Do characters clearly explain why the skill is useful?	Y/N
Could children use the skill this way?	Y/N
Do characters explicitly encourage viewers to use this skill in their own lives?	Y/N
Do characters use the same name for the skill at least twice?	Y/N
Do characters define this skill clearly?	Y/N
Do characters model this skill?	Y/N
Do characters encourage viewers to verbalize information related to this skill?	Y/N
Is this skill important to the plot?	Y/N

Where did you see this skill?

The same series of nine questions is repeated for each of the following SEL skills.

Cooperating or helping.

Resolving interpersonal conflicts nonviolently.

Naming or predicting others' emotions.

Self-calming or self-motivating.

Working through a decision-making process.

APPENDIX B

SELECT Coding Manual

SEL Skills

Cooperating or helping. Must include (1) a shared goal, and (2) contributions from multiple characters toward that goal. Contributions may include sharing opinions or resources. This is often demonstrated through division of labor or help-giving.

- **Examples**: One character breaks a dam, and his friends suggest several ways to fix it. One character loses her toy, and her friends help her look for it. Characters work together to build a fort for their club.
- **Non-examples**: Characters ignore others' problems. A character offers to help but does not actually provide help. A friend provides "help" with something that the recipient does not find problematic.

Naming or predicting others' emotions. A character must name an emotion that someone else might be feeling or is likely to feel in the future. Stating someone else's preference does not count.

- **Examples:** "You look sad." "Are you happy?" "Jimmy would be mad if I took his toy." "What are you, scared?"
- **Non-examples:** "Julie doesn't like oranges." "I wonder how Amy feels."

Resolving interpersonal conflicts nonviolently. Must include (1) two or more characters, (2) with conflicting desires, (3) who intentionally resolve the conflict. The conflict may involve one character hurting another's feelings or two characters disagreeing on their goals (e.g., two characters want to play together, but each wants to play a different game). The episode might

depict characters talking through a disagreement, apologizing, making reparations for wrongdoings, or reaching a compromise. Viewers must see some aspect of this resolution process—they should not have to infer that it occurred.

- **Examples:** Characters want to play together but disagree on the rules of the game. They try several compromises until they reach an agreement everyone can enjoy. A bully asks a character to fight after school, but the character thinks through her options and decides not to show up for the fight. A character's actions upset her friend. She considers several ways to resolve the conflict and decides to apologize.
- **Non-examples:** Characters intentionally injure or scare one another. A character struggles with his or her conflicting emotions alone. External circumstances, rather than interpersonal efforts, eliminate the conflict.

Working through a decision-making process. The episode must depict one or more characters' thought process during decision-making. Characters might brainstorm solutions, consider multiple pieces of relevant information, try multiple solutions, or think through the consequences of various options before selecting one. The process is what matters; characters do not have to reach a decision. This can be either a solitary or group process, and it can be used to make any type of decision.

- **Examples:** "How can I fix this toy? I could use tape, I could use glue, or I could ask my mom to buy a new one." "What kind of a party should I host? I could have a tea party, a camp-out, or a sleep-over." "We need to find the monster. We know he's hairy because we found his fur. We know he has big feet because we found his footprints. Who is hairy AND has big feet?"

- **Non-examples:** Simply stating that one has made a choice, such as "I'm going to wear my blue shoes!" Reaching a good decision in a flash of insight, such as "How can we solve this problem? I know! We can apologize!"

Naming or predicting one's emotions. A character either (1) names an emotion that he or she is feeling or negates an emotion that he or she is not feeling, or (2) asks the viewer to name his or her own emotions. Stating a preference does not qualify.

- **Examples:** "I feel sad." "I'm happy for you." "Viewer, how do you feel?" "I'm not scared."
- **Non-examples:** "I hate this." "I don't want to." "I would love to play." "I wonder what's for lunch."

Self-calming or self-motivating (managing one's emotions). Characters should demonstrate a strategy to manage their unwanted emotions, such as deep-breathing or self-talk. Note that this skill is *self*-calming-motivating. If another character or external circumstances modulate someone's emotions, this does not count.

- **Examples:** In one episode, characters decrease their fear of the woods by investigating things that seem scary. In another episode, a character faces a daunting task and tells himself, "You can do this. Be confident." In a third episode, a character is feeling sad, so she brainstorms activities that might make her happier.
- **Non-examples:** A character is angry one moment and happy the next, but viewers do not see how she worked to change her emotions. A character is discouraged, and his friends tell him "Don't give up!" He seems more motivated, but he did not calm or motivate himself—others did it for him.

Pedagogical Techniques

Do characters model this skill? Modeling means using the skill. Characters do not necessarily have to mention the skill as they are using it. However, viewers should see the behavior; they should not have to infer that it occurred.

- **Examples:** Characters work together to bake a cake. Characters brainstorm solutions to a problem.
- **Non-examples:** A character tells her friend to calm down, but viewers do not see any self-calming behavior.

Is this skill important to the plot? Is this skill important to characters' goal pursuits, or is it merely tangential information? If the skill instance were removed, would it change the plot? A skill can be included in the episode without being important to the plot at all; some series present skill-related behavior in short, non-plot-related segments like the "commercials" on Sesame Street.

- **Examples:** If two characters have a disagreement and reach a compromise, resolving interpersonal conflicts nonviolently is important to the plot. Without depicting this skill, the story would be quite different.
- **Non-examples:** A character says, "I'm happy we got our wish," but her happiness has little to do with the plot. Instead, the plot focuses on getting wishes. The story would be the same with or without emotion identification.

Could children use the skill this way? Would a child have the means to use this skill in the way it is depicted? Or do characters employ some special aid, such as magic or resources that a child would not have? Could a child watch the episode and think, "This skill would be useful when I face a similar situation"?

- **Examples:** In one episode characters play a game of "Follow the Leader" and make compromises so that everyone can participate. Most children could use cooperation to play games with friends.
- **Non-examples:** In one episode a villain prevents the planet from rotating. The heroes cooperate to solve this problem using sophisticated technology. A child would never use cooperation to save the planet. In another episode, characters help their friend by using magic. A child might help his friends, but never with magic.

Do characters encourage viewers to verbalize information related to this skill? Characters must encourage viewers to talk in one of two ways: (1) pausing after a question or (2) encouraging viewers to "Say it with me." Skill-related material is directly relevant to the skill; it might include naming the skill, reciting its steps, or practicing it.

- **Examples:** "How would you feel?" "Say the calm-down steps with me!" "Help us find Joe. Do you see him? Where?"
- **Non-examples:** Rhetorical questions.

Do characters use the same name for the skill at least twice? The name could be one word such as "sharing" or a phrase such as "calm-down time." This name should stand out clearly so that children will remember it. The name is unlikely to stand out if characters use it only once; episodes must include the name at least twice to receive credit. The name must refer to the skill itself, and it must be something a child could apply in real-life scenarios. Raters should use some personal judgment when rating this item; is the repeated name noticeable enough that a child would pick up on it?

- **Examples:** In one series, characters repeatedly use the phrase "Hop Think" to describe the practice of hopping while generating alternative solutions to a problem. Prompts do

not need to be unique phrases, though: In one episode characters use the word "selfless" frequently as a prompt for cooperating/helping.

- **Non-examples:** Characters will often identify others' emotions repeatedly by saying things like "Are you scared?" "You seem less scared now!" While they are modeling how to name another's emotions, they are not using a clear name for this skill (only for a specific emotion). Characters must name the skill itself (e.g., "Let me check in with how Jenny's feeling." Or "I will try to empathize with Thomas") in order to receive credit on this item.

***Do characters provide a clear definition for this skill?** Characters must provide detailed verbal information about the skill such as (1) a definition, (2) several clear verbal examples, or (3) a step-by-step method for executing a skill.

- **Examples:** "Calming down means taking deep breaths when you are angry." "To solve a problem, first name the problem. Then think of lots of ways to solve it. Then choose the best way and try it." One episode includes a song in which characters suggest several ways to manage their fear, including talking to a friend, facing one's fears, or using self-talk.
- **Non-examples:** Characters demonstrate several methods for using the skill throughout the episode, but they never verbally describe all of the examples together. Characters model a skill so clearly that one could infer a step-by-step protocol for imitating it.

***Do characters clearly explain why this skill is useful?** Characters must explain why the skill is generally useful, not why the skill was advantageous in one particular situation.

- **Examples:** "Calming down will help you make a better choice." "When you cooperate, you make more friends."

- **Non-examples:** “I’m glad we cooperated; it helped us win this game!” “When we stopped fighting, we realized we really like each other.” “I sing this song when I am scared to calm myself down.” The third statement connects a particular strategy to a general skill, but it does not describe why calming down as a skill is useful.

***Do characters explicitly encourage viewers to use this skill in their own lives?** Characters must address viewers directly by looking at the “camera,” and encourage them to use the skill in their own daily lives. Encouraging viewers to use the skill only within the context of the episode does not count.

- **Examples:** “Try breathing deeply the next time you get mad.” “Don’t let anyone make you fight.”
- **Non-examples:** Some episodes include songs with lyrics such as, “Be selfless, it’s the right thing to do.” Unless characters are directly addressing the viewers as they sing this lyric, the episode should not receive credit. “Help us solve our mystery!” would not count because it does not directly encourage children to use the skill in their own lives.

Note. For the purposes of this instrument, the word “character” refers to any voice in an episode, including narration. Do not code information contained in the title sequence. * = Later removed due to insufficient data.

APPENDIX C

Steps in the Teaching of a Skill

- Determine the strengths and needs of the group (or individual) being addressed.
- Select a skill focus.
- Prepare the group by describing situations in which the skill can be used, explain the skill, and elicit a rationale from the group for the importance of the skill; a rationale must be provided before instruction can begin.
- Ask how the group has handled these situations before, what they have used or tried to help them cope.
- Break the skill down into its component parts.
- Teach a prompt or name for the skill to use when cuing the practice of the skill.
- Ask the group to identify situations in which the skill would be useful to them.
- Teach the component parts through modeling.
- Provide hypothetical situations (via stories, videos, role-play vignettes) for guided practice and rehearsal with feedback.
- Encourage use of the skill inside and outside of the session and integrate with other skills when possible; assign homework.
- Begin subsequent meetings with reviews and testimonials to monitor progress, reinforce skills, and determine next area of focus (i.e., cycle back to beginning of process). (Elias & Tobias, 1996, p. 32)

APPENDIX D

Additional Measurement Models

SEL-Skill-Cluster Analysis

$$\log [P_{nidjk}/P_{nidj(k-1)})] = B_n - D_i - K_d - C_j - F_{ik} \quad (2)$$

where

P_{nidjk} = the probability that episode *n* will receive a rating of *k* from rater *j* on pedagogical technique *i* for a SEL skill included in skill cluster *d*,

$P_{nidj(k-1)}$ = the probability that episode *n* will receive a rating of *k* – 1 from rater *j* on pedagogical technique *i* for a SEL skill included in skill cluster *d*,

B_n = the strength of SEL content in episode *n*,

D_i = the frequency of use of pedagogical technique *i*,

K_d = the strength of emphasis on skills in SEL skill cluster *d*,

C_j = the leniency of rater *j*, and

F_{ik} = the difficulty of scale category *k*, relative to scale category *k* - 1 for pedagogical technique *i*.

Pedagogical-Technique-Cluster Analysis

$$\log [P_{nidjk}/P_{nidj(k-1)})] = B_n - L_i - S_d - C_j - F_{ik} \quad (3)$$

where

P_{nidjk} = the probability that episode *n* will receive a rating of *k* from rater *j* on a pedagogical technique included in technique cluster *i* for SEL skill *d*,

$P_{nidj(k-1)}$ = the probability that episode *n* will receive a rating of *k* – 1 from rater *j* on a pedagogical technique included in technique cluster *i* for SEL skill *d*,

B_n = the strength of SEL content in episode *n*,

L_i = the frequency of use of pedagogical techniques in technique cluster *i*,

S_d = the strength of emphasis on SEL skill *d*,

C_j = the leniency of rater *j*, and

F_{ik} = the difficulty of scale category *k*, relative to scale category *k* - 1 for pedagogical technique *i*.

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MANUSCRIPTS IN PREPARATION

1. **Christensen, C. G.**, Myford, C., Weissberg, R. P., & Ji, P. (In preparation). Measuring social and emotional content in educational television for children.

2. Ji, P., & **Christensen, C. G.,** & Rothenbach, K. M. (In preparation). A Rasch analysis of a self-report instrument that measures kindergarten, first, and second grade students' perceptions of school climate.

CONFERENCE PRESENTATIONS

1. **Christensen, C. G.** (April, 2011). Promoting social and emotional learning through skills training and environment modification. Paper presentation in a symposium at the annual meeting of the American Educational Research Association, New Orleans, LA.

2. **Christensen, C. G.** (June, 2011). Measuring social and emotional content in educational television for children. Poster presentation at the 13th biennial meeting of the Society for Community Research and Action, Chicago, IL.

3. Ji, P., **Christensen, C. G**, & Rothenbach, K. M. (June, 2011). A Rasch analysis of a self-report instrument that measures kindergarten, first, and second grade students' perceptions of school climate. Poster presentation at the 13th biennial meeting of the Society for Community Research and action, Chicago, IL.

4. Rowe, H. L., **Christensen, C. G.,** Coleman, B., Gauvin, R., Gur, O., Mart, A., & Relyea, M. (October, 2009). Community research: Looking back, moving forward. Poster session presented at the annual Midwest ECO Conference, Chicago, IL.

RESEARCH EXPERIENCE

2009 - 2010
Social and Emotional Learning Research Group
University of Illinois at Chicago
Roger P. Weissberg, Ph.D., Director.
RESEARCH ASSISTANT. Reviewed school-based social and emotional learning curricula based on their evaluations and pedagogical materials. Maintained a database of curricular materials. Wrote summaries of curricula.

2007 - 2009
Pearson Education
Laura E. Berk, Ph.D., Author.
RESEARCH/EDITORIAL ASSISTANT. Assisted in the production of developmental psychology textbooks and pedagogical supplements. Conducted literature searches, wrote test banks, revised study guides, and co-produced educational videos.

MEDIA EXPERIENCE

2007-2010
Berk Educational Texts, Normal, IL
Laura E. Berk, Director.
CO-PRODUCER AND DIGITAL CONTENT AUTHOR. Researched interviewees, wrote and conducted interviews, wrote voice-over, and directed edits for educational videos about developmental psychology. Wrote storyboards for and directed production of digital activities to supplement textbooks.

2007-2008
Children's Discovery Museum, Normal, IL
Shari Buckellew, Director.
INTERN. Created promotional videos for museum fund-raising. Facilitated visitor interaction and educational presentations.

2007
TV-10 News
Illinois State University
NEWS PHOTOGRAPHER. Shot and edited video packages for a local news program.

2005
Sycamore School District, Sycamore, IL
VOLUNTEER. Wrote, directed, and produced educational science videos tailored to elementary classroom curricula.

EDITORIAL EXPERIENCE

Student reviewer, *Child Development,* 2008

TEACHING EXPERIENCE

2011 - present
University of Illinois at Chicago
TEACHING ASSISTANT: Research Methods (Spring and Summer, 2011